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BASIC

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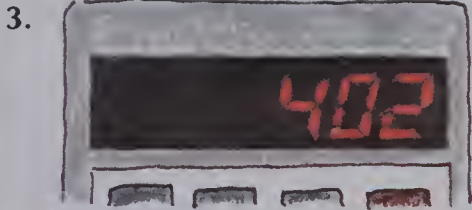
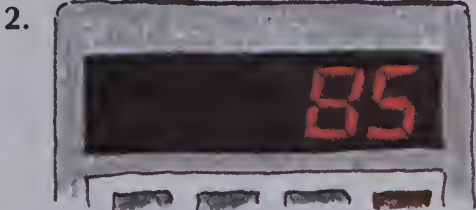
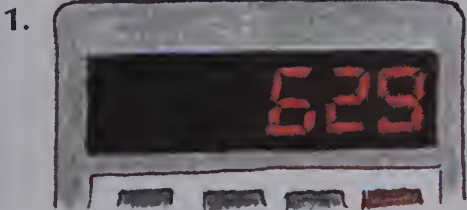
UNIT 1

NUMERATION

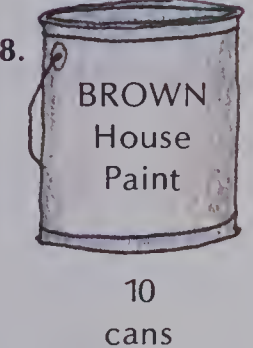
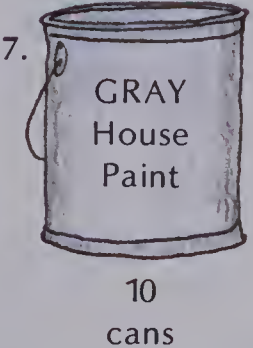
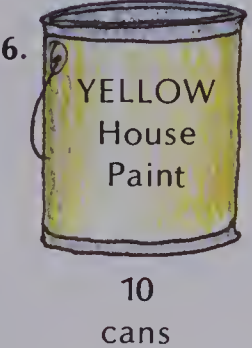
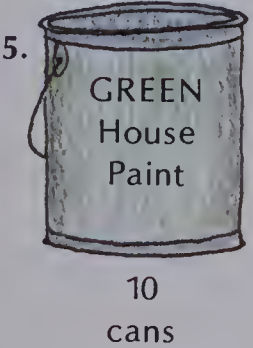
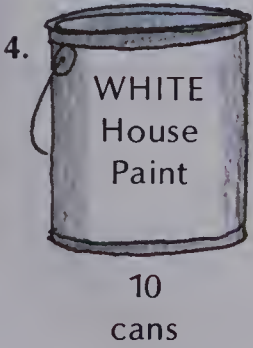
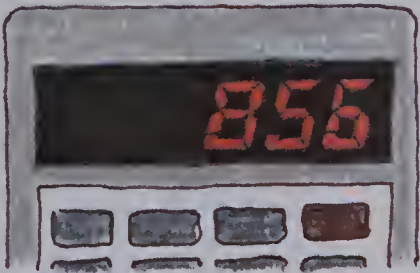


Taking Stock

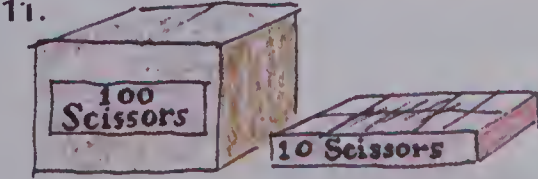
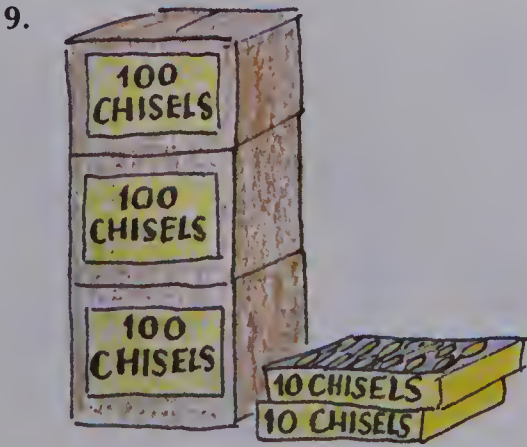
Jim is taking stock in the hardware store. He entered the following numbers on his calculator. Write the numbers in expanded form.



Jim counted 856 cans of paint. Then he counted the cans on another shelf. Write the numbers that appeared on the calculator as he added each number.



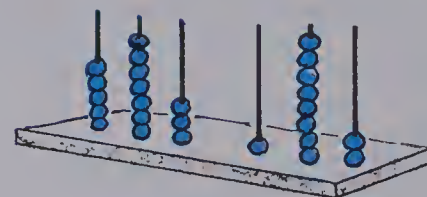
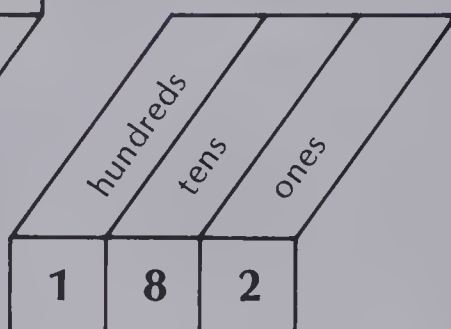
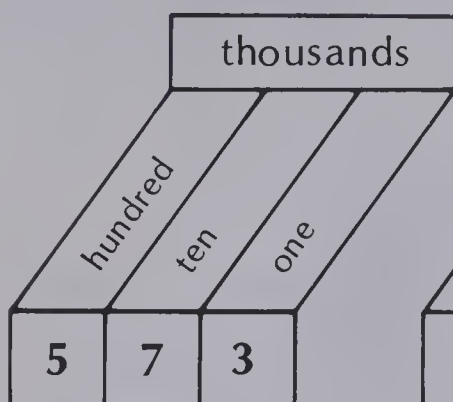
Write the total for each kind of tool.



Thousands



Mr. Logan noted in his inventory that he had 573 182 cut boards.



abacus

Expanded form: $500\ 000 + 70\ 000 + 3000 + 100 + 80 + 2$

Standard form: 573 182

Words: five hundred seventy-three thousand one hundred eighty-two

EXERCISES

Write in standard form.

1. $50\ 000 + 3000 + 900 + 60 + 4$
2. $400\ 000 + 80\ 000 + 2000 + 100 + 50 + 9$
3. $3000 + 40 + 7$
4. $900\ 000 + 6000 + 10 + 3$
5. twenty-five thousand three
6. eight hundred fifty-six thousand four hundred sixteen
7. seven hundred seven thousand two hundred two

Write in expanded form.

8. 187 245
9. 1047
10. 693 182
11. 50 204

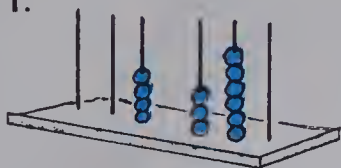
Write the place value of the underlined digit.

12. 493 216
13. 858 724
14. 501 267
15. 650 349
16. 265 498
17. 794 851

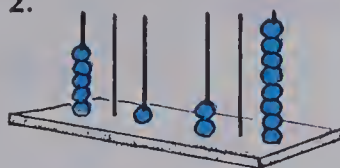
PRACTICE

Write in standard form.

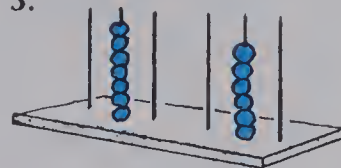
1.



2.



3.



4. 2 hundred thousands, 2 hundreds
5. 7 ten thousands, 6 thousands, 5 tens
6. $300\ 000 + 90\ 000 + 4\ 000 + 600 + 20 + 5$
7. $8\ 000 + 70 + 1$
8. $50\ 000 + 200 + 8$
9. $700\ 000 + 60\ 000 + 500 + 90$
10. six hundred twenty-two thousand eight hundred thirteen
11. one thousand seven hundred forty-five
12. thirty thousand nine
13. four hundred thousand five hundred
14. eighty thousand two hundred seven

Write the next five numerals.

15. 79 149

16. 4000

17. 999 990

18. 9999

Number Fun

Make six-digit numerals that have a 1 in the hundred thousands place. Use the digits below. In each numeral, use each digit only once. How many different numerals can you make?



Millions



Can you help Mr. Logan read this number?

millions		
hundred	ten	one
2	9	4

thousands		
hundred	ten	one
6	0	3

hundreds	tens	ones
7	1	8

Expanded form: 200 000 000 + 90 000 000 + 4 000 000
+ 600 000 + 00 000 + 3000 + 700 + 10 + 8

Standard form: 294 603 718

Words: two hundred ninety-four million six hundred three thousand seven hundred eighteen

EXERCISES

What is the place value of the 5?

- 5 762 138
- 18 057 923
- 511 692 404
- 26 834 519
- 350 274 196
- 8 560 301

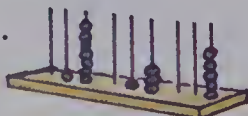
What is the next whole number?

- 70 000
- 659 498
- 7 000 999
- 46 327 999
- 342 129 999
- 156 999 999

Write in standard form.

- six million
- eight hundred twenty-five million one hundred eighteen thousand two hundred seventy-three
- seventy-six million three hundred nine thousand fifty-seven

16.



17.



PRACTICE

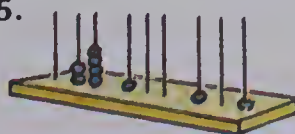
Write in standard form.

1. $10\,000\,000 + 3\,000\,000 + 600\,000 + 20\,000 + 8000 + 500 + 70 + 4$
2. $400\,000\,000 + 600\,000 + 20\,000 + 900 + 10 + 5$
3. $5\,000\,000 + 70\,000 + 8000 + 200$

4.



5.



6. twelve million
7. three hundred two thousand
8. two million five hundred
9. four hundred forty-five million
10. seventy-seven million
11. eleven million eleven thousand

What is the next larger number?

12. 307 999
13. 7 999 999
14. 342 129 999

Write in expanded form.

15. 41 783
16. 9 000 000
17. 374 630 215
18. 13 090 802
19. 521 000 234
20. 24 851 367

21. Write the largest nine-digit number possible, using all of the digits from 1 to 9 only once.

Lonk's Logic

Lonk, a visitor from Pluto, wrote these sentences in a base ten number system. He used *his* symbols for our digits 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9. Rewrite the sentences in our digits.

$$\triangle + \triangle = \cup 0$$

$$* + \square = \cup 0$$

$$\cup - \square = \cup$$

$$0 + \bigcirc = \triangle$$

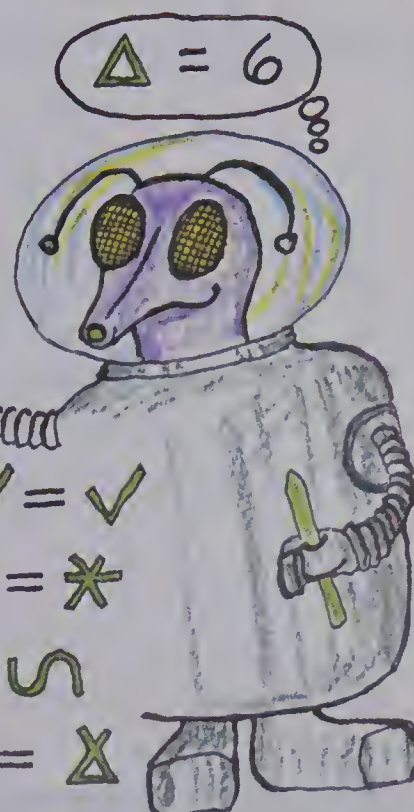
$$\square + \times = \times$$

$$\cup 0 - \checkmark = \checkmark$$

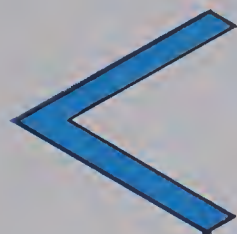
$$\cup \times - * = *$$

$$\checkmark - \triangle = \cup$$

$$\cup \square - \times = \times$$



Comparing Numbers



is less than

thousands	hundreds	tens	ones
7	3	4	2

thousands	hundreds	tens	ones
7	3	1	8

Compare the thousands: $7000 = 7000$

(They are equal, so compare the digits in the next place.)

Compare the hundreds: $300 = 300$

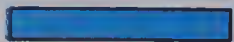
(They are equal, so compare the digits in the next place.)

Compare the tens: $40 > 10$

$$7342 > 7318$$



equals



is greater than

EXERCISES

Copy and complete. Use $<$, $=$, or $>$.

- | | | |
|---|--|---------------------------------|
| 1. 29 \blacksquare 21 | 2. 700 \blacksquare 300 | 3. 641 \blacksquare 638 |
| 4. 98 \blacksquare 101 | 5. 475 \blacksquare 461 | 6. 4000 \blacksquare 7000 |
| 7. 6413 \blacksquare 6397 | 8. 5426 \blacksquare 5612 | 9. 97 128 \blacksquare 97 200 |
| 10. 47 103 926 \blacksquare 8 965 979 | 11. 9 173 402 \blacksquare 9 173 410 | |

What are the whole numbers between:

- | | |
|-------------------------|---------------------------|
| 12. 98 and 103 ? | 13. 9999 and 10 004 ? |
| 14. 50 505 and 50 515 ? | 15. 700 008 and 700 012 ? |

What whole number precedes each number?

- | | | |
|------------|-------------|---------------|
| 16. 500 | 17. 999 | 18. 6201 |
| 19. 58 780 | 20. 103 310 | 21. 8 000 000 |

Rearrange each *less than* statement to make a *greater than* statement.

- | | | |
|-----------------|------------------|-------------------|
| 22. $473 < 483$ | 23. $999 < 1003$ | 24. $8452 < 8542$ |
|-----------------|------------------|-------------------|

PRACTICE

Write in order from smallest to largest.

1. 399, 397, 404, 401, 398
2. 1101, 1011, 1110, 1001
3. 52 555, 55, 255, 25, 555
4. 3333, 33 333, 333, 33

Copy and complete. Use $<$, $=$, or $>$.

5. 630 \blacksquare 603
6. 6254 \blacksquare 6245
7. 7556 \blacksquare 7665
8. 11 212 \blacksquare 11 121
9. 54 461 \blacksquare 54 614
10. 7 999 999 \blacksquare 7 909 999
11. 143 000 \blacksquare 142 800
12. 8 080 808 \blacksquare 8 180 808

What number is 1 less than each number?

13. 6201
14. 5000
15. 8 00 000
16. 7 000 060

What are the whole numbers between:

17. 1000 and 1003 ?
18. 80 809 and 80 812 ?
19. 999 999 and 1 000 002 ?
20. 900 008 and 900 011 ?

Rearrange each *greater than* statement to make a *less than* statement.

21. $4893 > 4873$
22. $6579 > 6570$
23. $900\ 000 > 899\ 999$
24. $6\ 125\ 417 > 6\ 125\ 407$

File It!

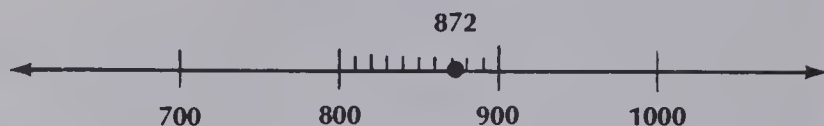
Simone's summer job was to file invoices by number. Write the letter of the drawer in which each invoice should be filed.

J 98 001–98 250	K 98 251–98 550	L 98 551–98 750	M 98 751–99 000
Invoice 98 305	Invoice 98 999	Invoice 98 449	Invoice 98 749
Invoice 98 904	Invoice 98 620	Invoice 98 046	Invoice 98 249

Rounding

On Saturday, Mr. Logan sold \$862 worth of tools. He sold about \$900 worth.

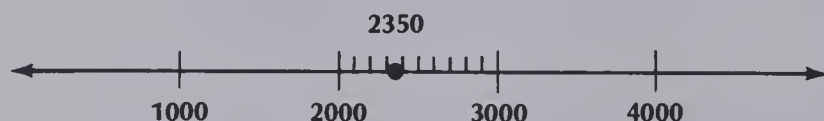
To the nearest hundred, **872 rounds to 900**.



872 is closer to 900 than to 800.

Mr. Zalewski used 2350 m of fencing.

To the nearest thousand, **2350 rounds to 2000**.



2350 is closer to 2000 than to 3000.



EXERCISES

Round to the nearest ten.

- | | | | |
|--------|---------|-------|--------|
| 1. 33 | 2. 61 | 3. 92 | 4. 74 |
| 5. 169 | 6. 1207 | 7. 95 | 8. 105 |

Round to the nearest hundred.

- | | | | |
|---------|----------|----------|------------|
| 9. 431 | 10. 786 | 11. 150 | 12. 111 |
| 13. 499 | 14. 2195 | 15. 1895 | 16. 15 564 |

Round to the nearest thousand.

- | | | | |
|----------|----------|------------|-------------|
| 17. 5617 | 18. 5312 | 19. 6875 | 20. 9499 |
| 21. 8539 | 22. 9994 | 23. 17 500 | 24. 604 604 |

Round to the nearest ten thousand.

- | | | | |
|-------------|------------|-------------|---------------|
| 25. 91 764 | 26. 38 529 | 27. 175 408 | 28. 652 196 |
| 29. 785 176 | 30. 9999 | 31. 678 126 | 32. 6 590 316 |

PRACTICE

Write the letter of the matching number. The answers have a message.

1. 92 845 rounded to the nearest ten.
2. 359 056 rounded to the nearest ten.
3. 6 092 853 rounded to the nearest ten.
4. 71 845 rounded to the nearest thousand.
5. 439 056 rounded to the nearest thousand.
6. 92 845 rounded to the nearest thousand.
7. 359 056 rounded to the nearest hundred.
8. 6 092 853 rounded to the nearest hundred.
9. 71 845 rounded to the nearest hundred.

- | | |
|----|-----------|
| O. | 359 060 |
| R. | 93 000 |
| D. | 72 000 |
| L. | 71 800 |
| F. | 359 100 |
| W. | 92 850 |
| E. | 439 000 |
| U. | 6 092 900 |
| N. | 6 092 850 |

Write *ten*, *hundred*, or *thousand*.

10. 25 475 rounded to the nearest ■ is 25 500.
11. 9065 rounded to the nearest ■ is 9070.
12. 201 132 rounded to the nearest ■ is 201 000.

Round each to the nearest 10 000.

- | | | | |
|------------|------------|------------|-------------|
| 13. 67 321 | 14. 82 964 | 15. 45 311 | 16. 284 990 |
|------------|------------|------------|-------------|

REVIEW

Write in standard form.

- $\frac{1}{2}$
1. seven thousand seven
 2. one hundred ninety-five thousand six hundred eleven
 3. $700\ 000 + 50\ 000 + 4000 + 6$

Write the place value of the underlined digit.

- $\frac{2}{3}$
- | | |
|-----------------------|------------------------|
| 4. 5 <u>6</u> 52 103 | 5. 4 <u>3</u> 752 109 |
| 6. <u>3</u> 9 702 134 | 7. <u>5</u> 68 172 451 |

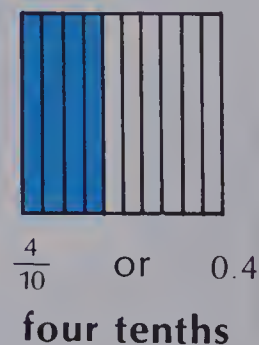
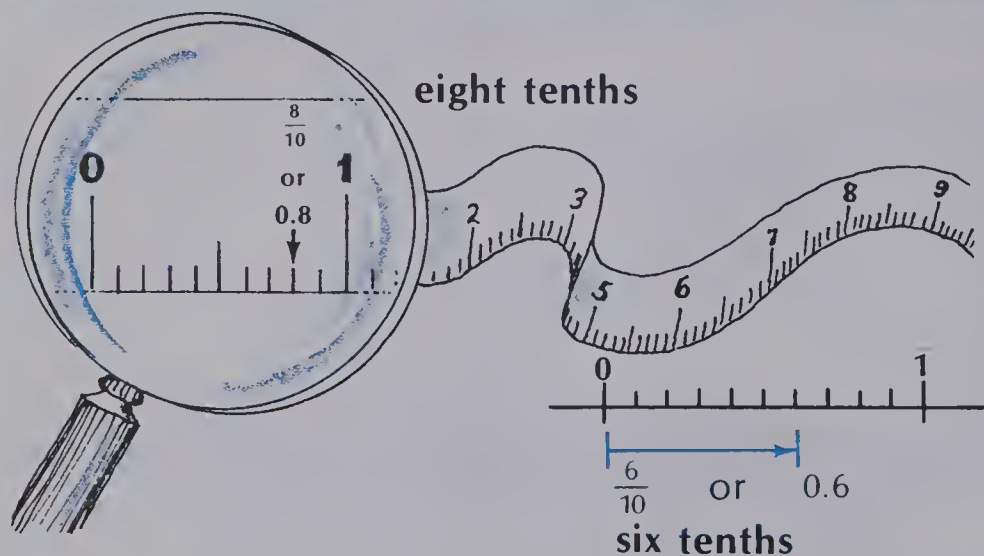
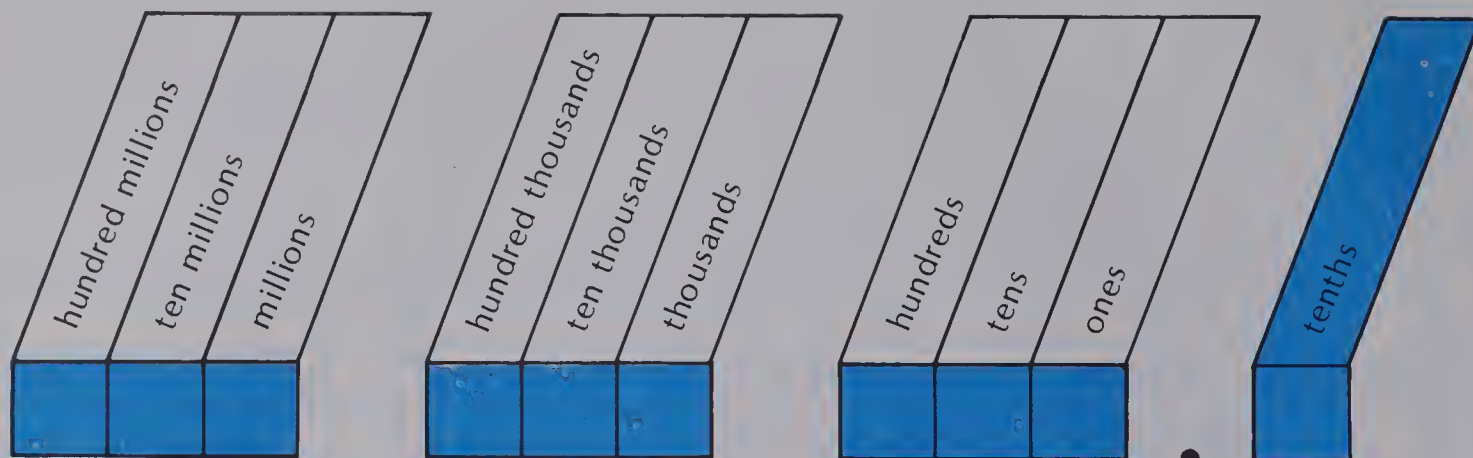
Copy and complete. Use $<$, $=$, or $>$.

- $\frac{3}{4}$
- | | |
|---------------------------|--------------------|
| 8. 1685 ■ 1675 | 9. 11 652 ■ 11 652 |
| 10. 1 372 115 ■ 1 272 115 | 11. 9999 ■ 10 000 |

Round 51 375 to the nearest:

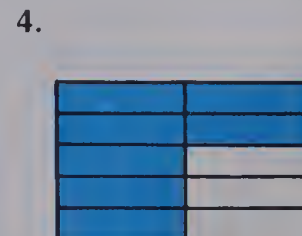
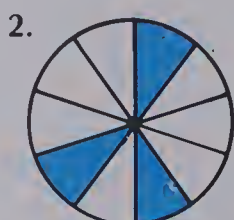
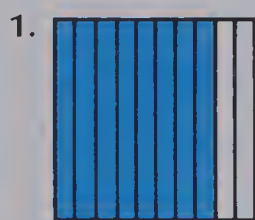
- $\frac{4}{5}$
- | | |
|--------------|------------------|
| 12. ten | 13. hundred |
| 14. thousand | 15. ten thousand |

Tenths



EXERCISES

Write the decimal for the shaded part.

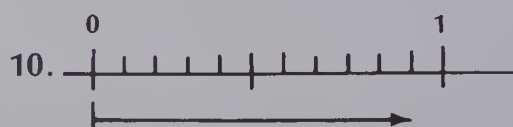


Write the decimal.

5. nine tenths

6. eight tenths

7. two tenths



PRACTICE

Write the decimal.

1. 3 of 10 equal parts

2. 1 of 10 equal parts

3. $\frac{6}{10}$

4. $\frac{2}{10}$

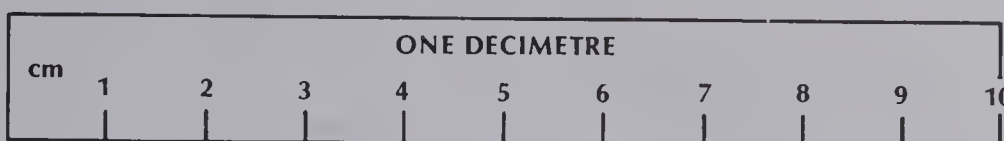
5. $\frac{3}{10}$

6. $\frac{9}{10}$



1 dm = 10 cm

1 cm = 0.1 dm



How many decimetres? Write the decimal.

9. 3 cm

10. 8 cm

11. 5 cm

12. 6 cm

Use a ruler to draw a line segment the following length.

13. 0.2 dm

14. 0.7 dm

15. 0.5 dm

16. 0.9 dm

Write in words.

17. 0.1

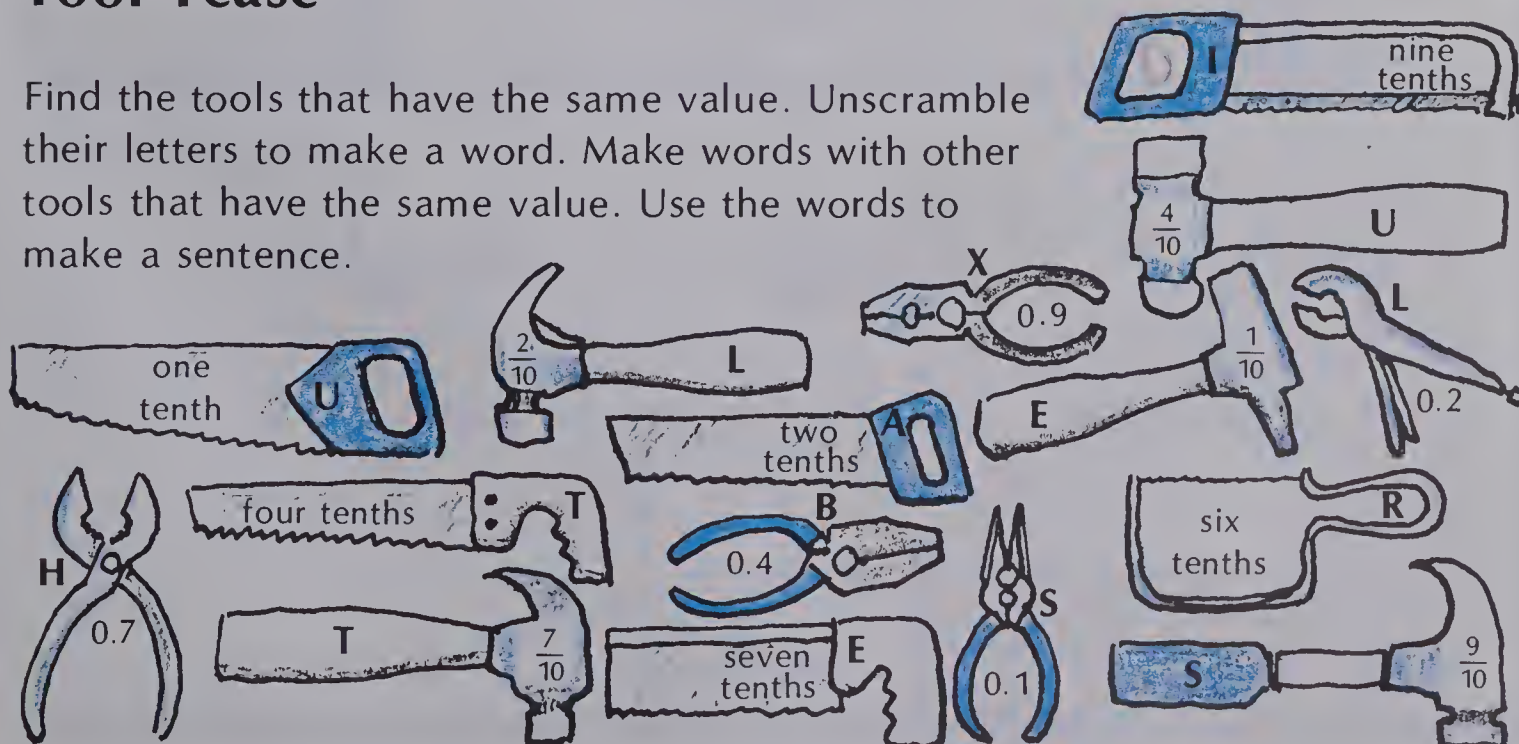
18. 0.8

19. 0.6

20. 0.3

Tool Tease

Find the tools that have the same value. Unscramble their letters to make a word. Make words with other tools that have the same value. Use the words to make a sentence.

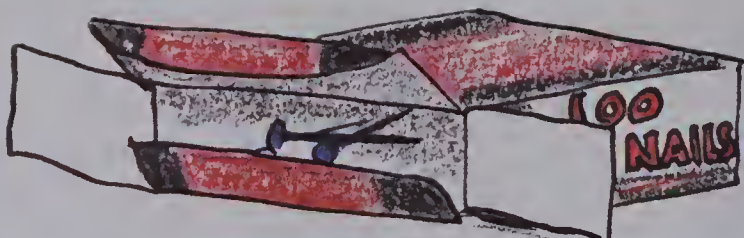


Hundredths



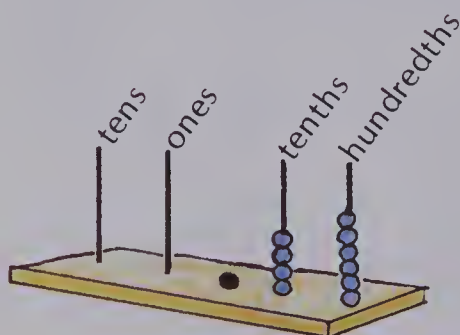
46 screws left

$$\frac{46}{100} \text{ or } 0.46$$

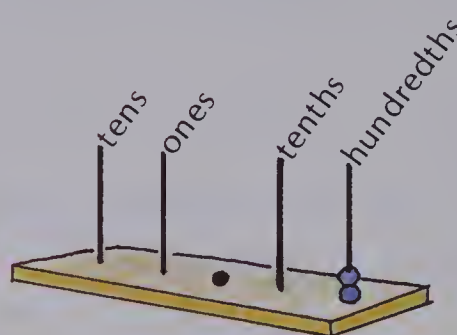


2 nails left

$$\frac{2}{100} \text{ or } 0.02$$



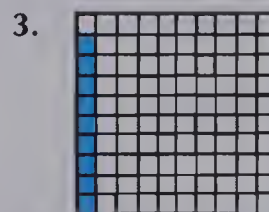
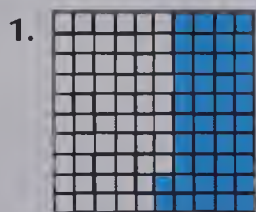
forty-six hundredths



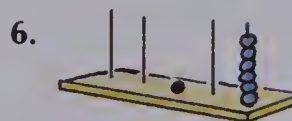
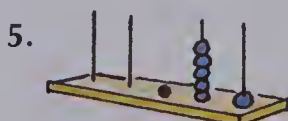
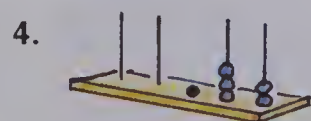
two hundredths

EXERCISES

Write the decimal for the shaded part.



Write the decimal.



7. thirty-eight hundredths

8. forty-four hundredths

9. seven hundredths

10. two hundredths

11. $\frac{25}{100}$

12. $\frac{4}{100}$

13. $\frac{91}{100}$

14. $\frac{12}{100}$

Write each amount using numerals and \$.

15. seventy-two cents

16. eight cents

17. eighteen cents

18. five cents

PRACTICE

Write the decimal.

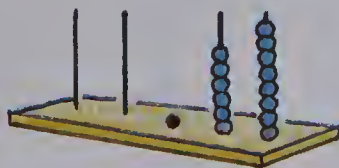
1. $\frac{24}{100}$

2. $\frac{68}{100}$

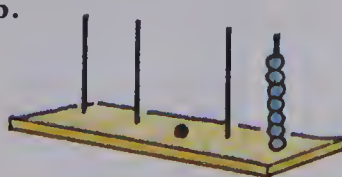
3. $\frac{30}{100}$

4. $\frac{99}{100}$

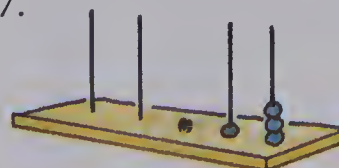
5.



6.



7.



Write each amount using numerals and \$.

8. sixty-five cents

9. thirty-two cents

10. four cents

11. one cent

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ cm} = 0.01 \text{ m}$$



Write the decimal for the number of metres.

12. 82 cm

13. 3 cm

14. 54 cm

15. 61 cm

16. 47 cm

Write each measurement in centimetres.

17. 0.24 m

18. 0.96 m

19. 0.40 m

20. 0.02 m

21. 0.35 m

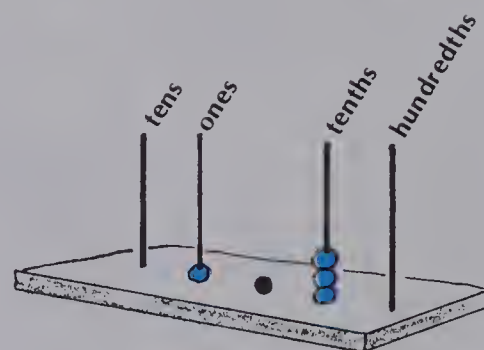
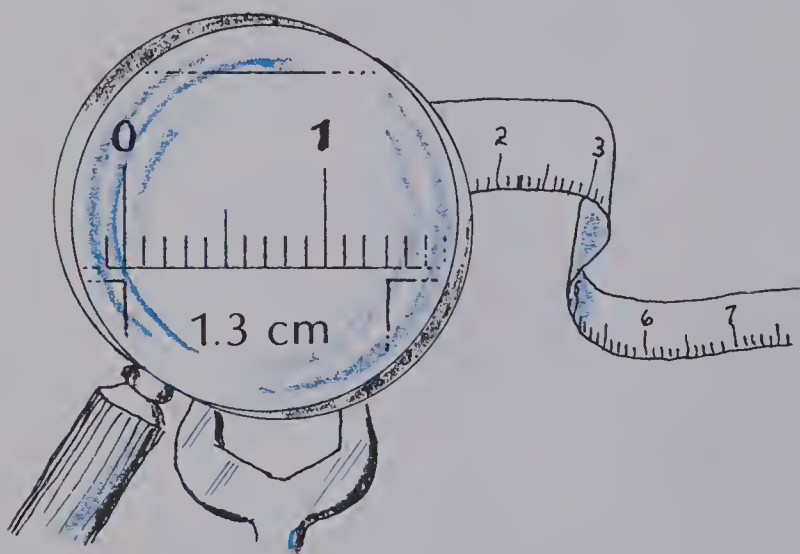
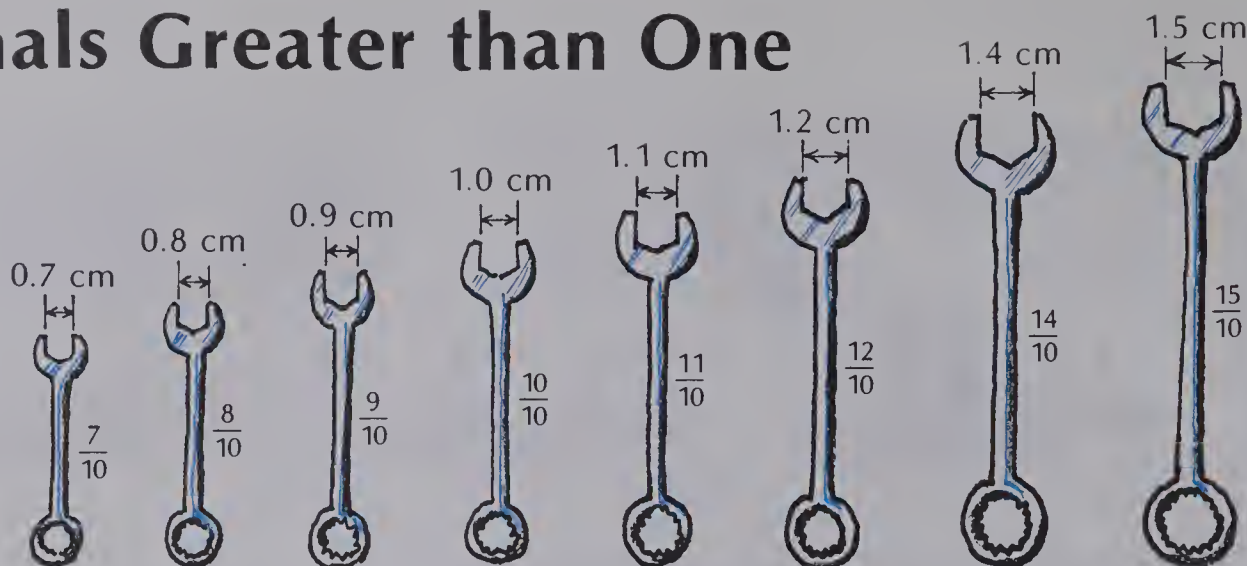
Tile Patterns

Discover the patterns in the rows and columns. Copy and complete the chart.

0.31	0.33	0.35	0.37		
0.32	0.35	0.38	0.41		
0.33	0.37	0.41	0.45		
0.34	0.39	0.44	0.49		

Decimals Greater than One

WRENCH
SET
\$42.95



one **and** three tenths

EXERCISES

Write as a decimal.

- sixteen **and** two tenths
- seventy-one **and** eleven hundredths
- twelve **and** two hundredths

5. $\frac{17}{10}$

6. $\frac{128}{100}$

7. $\frac{495}{100}$

4.



Write each amount using numerals and \$.

- three dollars **and** forty-five cents
- eighty-five dollars **and** nine cents

What is the place value of the underlined digit?

10. 75.27

11. 35.09

12. 5.29

PRACTICE

Write as a decimal.

1. thirty-five and five tenths
2. sixty-one and twelve hundredths
3. seventy and seven hundredths
4. twenty and four tenths



6. $\frac{19}{10}$

7. $\frac{27}{10}$

8. $\frac{10}{10}$

9. $\frac{50}{10}$

10. $\frac{159}{100}$

11. $\frac{502}{100}$

12. $\frac{720}{100}$

13. $\frac{624}{100}$

Write each amount using numerals and \$.

14. forty-two dollars and thirty-seven cents
15. three dollars and eight cents

What is the place value of the underlined digit?

16. 36.05

17. 1.04

18. 7.2

19. 35.27

20. 58.06

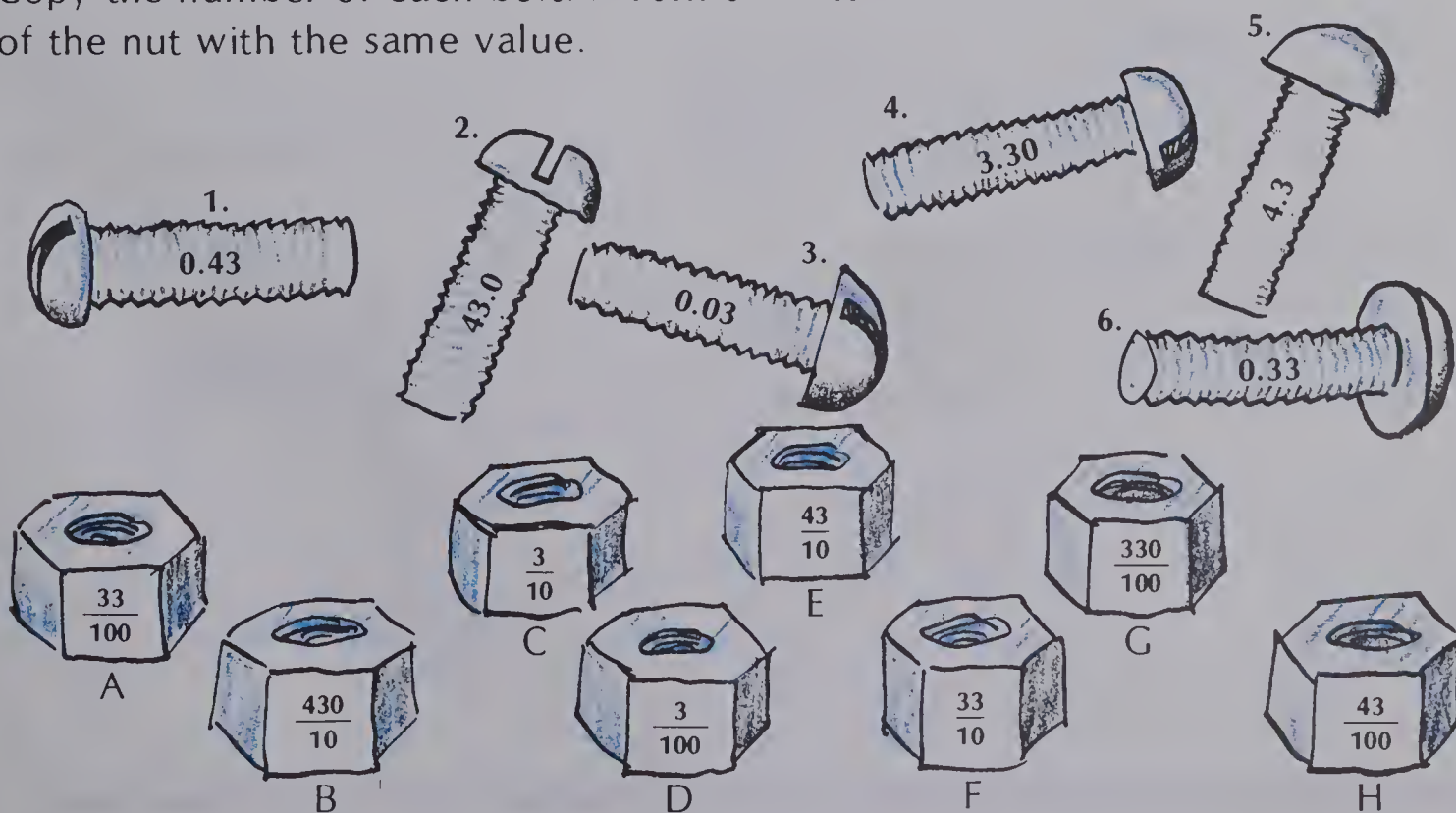
21. 6.75

22. 29.46

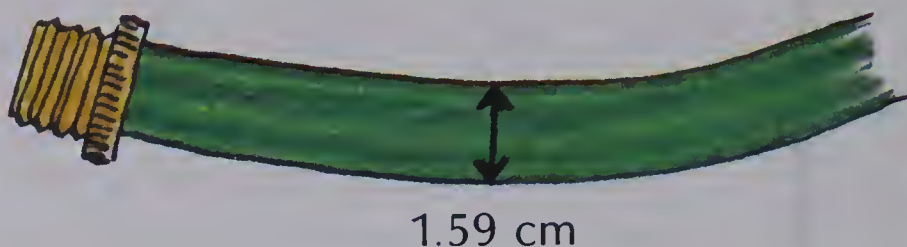
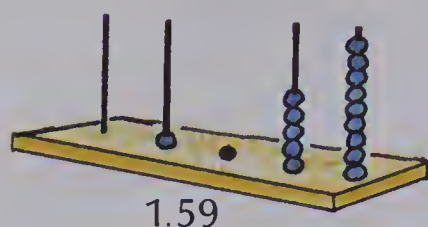
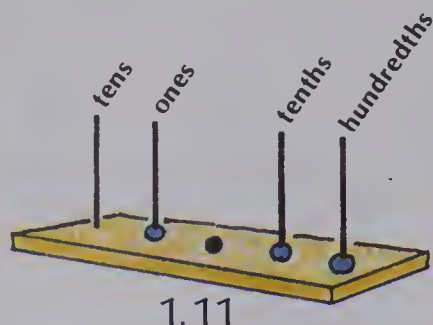
23. 47.03

The Perfect Fit

Copy the number of each bolt. Match the letter of the nut with the same value.



Comparing Decimals



Compare the ones: $1 = 1$

(They are equal, so compare the digits in the next place.)

Compare the tenths: $1 < 5$

$$1.11 < 1.59$$

EXERCISES

Which is greater?

- | | | |
|-----------------|-----------------|-------------------|
| 1. 0.7 or 0.4 | 2. 5.89 or 5.98 | 3. 24.01 or 24.10 |
| 4. 0.28 or 0.27 | 5. 6.76 or 6.79 | 6. 21.06 or 21.05 |

Copy and complete. Use $<$ or $>$.

- | | | |
|------------------------------|--------------------------------|--------------------------------|
| 7. $4.7 \blacksquare 4.2$ | 8. $0.6 \blacksquare 0.9$ | 9. $51.5 \blacksquare 51.3$ |
| 10. $0.24 \blacksquare 0.27$ | 11. $5.37 \blacksquare 5.36$ | 12. $19.09 \blacksquare 19.08$ |
| 13. $6.2 \blacksquare 5.7$ | 14. $38.04 \blacksquare 39.03$ | 15. $1.5 \blacksquare 2.1$ |

Write in order from smallest to largest.

16. 1.9, 1.6, 1.2, 1.5, 1.3, 1.8
17. 0.6, 1.1, 0.9, 2.8, 1.5, 0.4
18. 8.24, 8.53, 8.35, 8.42, 8.87
19. 6.24, 5.98, 6.19, 5.89, 4.32, 7.59

PRACTICE

Copy and complete. Use $<$ or $>$.

1. 15.3 \blacksquare 15.4
2. 92.13 \blacksquare 92.07
3. 18.50 \blacksquare 19.50
4. 0.49 \blacksquare 0.40
5. 5.30 \blacksquare 4.32
6. 0.20 \blacksquare 0.19
7. 11.27 \blacksquare 12.72
8. 46.01 \blacksquare 46.10
9. 3.76 \blacksquare 3.67
10. 34.51 \blacksquare 24.50
11. 76.12 \blacksquare 75.98
12. 7.8 \blacksquare 8.7

Write the next three decimals in the pattern.

13. 0.2, 0.4, 0.6, \blacksquare , \blacksquare , \blacksquare
14. 0.48, 0.49, 0.50, \blacksquare , \blacksquare , \blacksquare
15. 0.25, 0.30, 0.35, \blacksquare , \blacksquare , \blacksquare
16. 1.01, 2.02, 3.03, \blacksquare , \blacksquare , \blacksquare
17. 6.50, 6.75, 7.00, \blacksquare , \blacksquare , \blacksquare

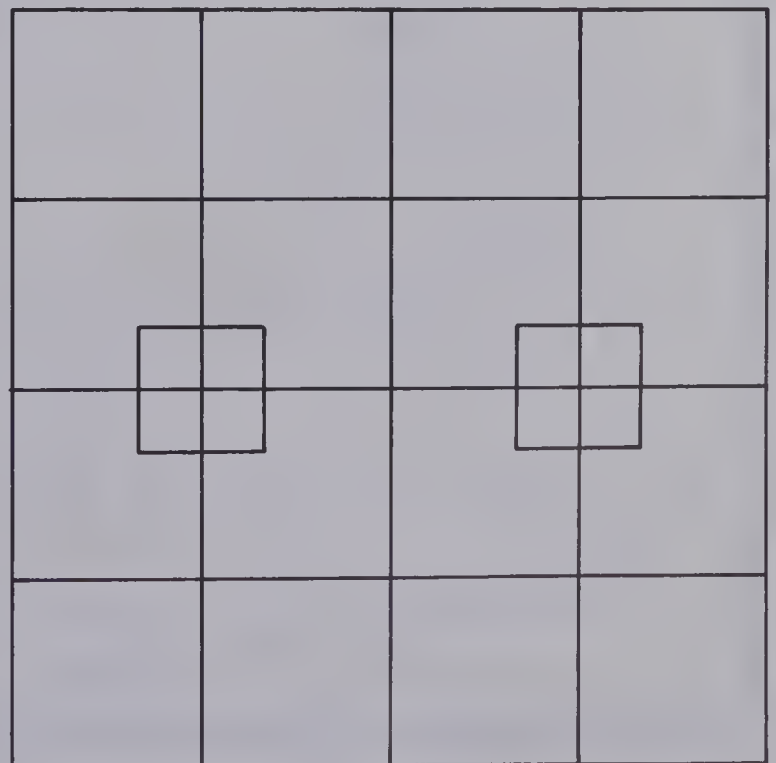
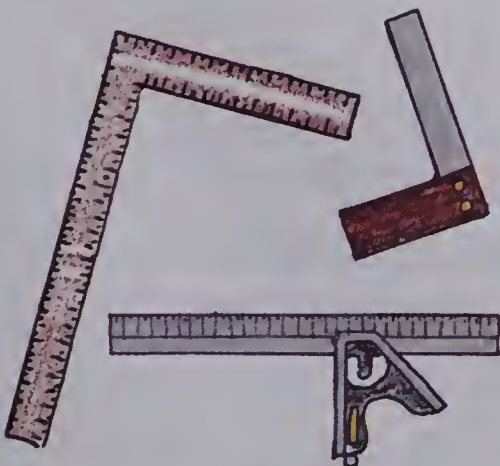
Write in order from smallest to largest.

18. 0.2, 1.5, 0.7, 2.1, 0.1, 2.5
19. 8.06, 9.05, 7.89, 8.01, 9.01, 8.52
20. 12.41, 13.50, 11.22, 12.01, 12.58, 12.09

A Square Problem

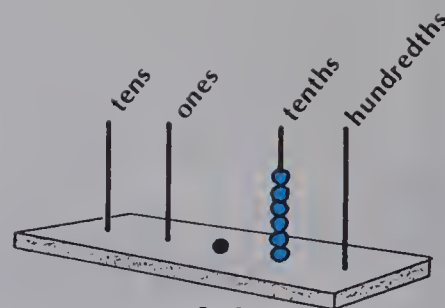
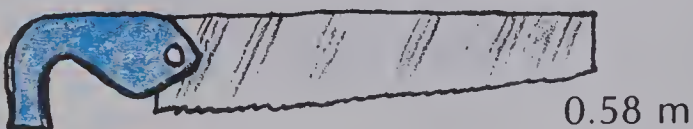
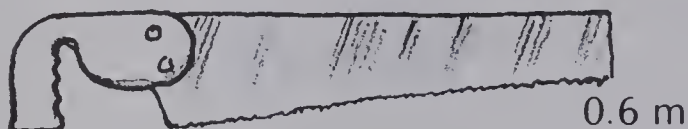
How many squares
can you find?

Hint! Make a list.

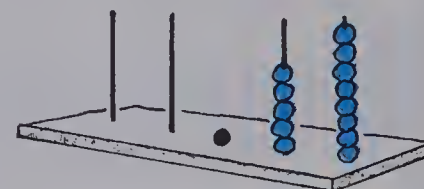


Comparing Decimals

Which saw is shorter?



0.6
0.60



0.58

To compare the numbers, write a **zero** after the last digit in 0.6.

$$\begin{array}{r} 0.60 \\ 0.58 \end{array} \quad 0.6 > 0.58$$

EXERCISES

Copy and complete.

1. $0.4 = 0.4 \blacksquare$
2. $7.5 = 7.5 \blacksquare$
3. $6 = 6. \blacksquare$
4. $13.2 = 13. \blacksquare \blacksquare$
5. $0.9 = 0. \blacksquare \blacksquare$
6. $17 = 17. \blacksquare \blacksquare$

Write a decimal in hundredths that has the same value.

7. 0.4
8. 51.2
9. 4.7
10. 45

Copy and complete. Use $<$ or $>$ for \blacksquare .

11. $0.40 > 0.39$
12. $9.59 < 9.60$
13. $6.20 > 6.02$
14. $0.4 \blacksquare 0.39$
15. $9.59 \blacksquare 9.6$
16. $6.2 \blacksquare 6.02$
17. $3.05 \blacksquare 3.50$
18. $38.1 \blacksquare 38.0$
19. $15.00 \blacksquare 15.01$
20. $3.05 \blacksquare 3.5$
21. $38.1 \blacksquare 38$
22. $15 \blacksquare 15.01$
23. $5.2 \blacksquare 5.02$
24. $73.09 \blacksquare 73.9$
25. $16 \blacksquare 16.01$
26. $42.09 \blacksquare 41.79$
27. $6.2 \blacksquare 7$
28. $86.4 \blacksquare 86.04$

PRACTICE

Copy and complete.

1. $20.5 = 20.\blacksquare\blacksquare$

2. $9.30 = 9.\blacksquare$

3. $71.6 = 71.\blacksquare\blacksquare$

4. $63 = 63.\blacksquare\blacksquare$

5. $5.8 = 5.\blacksquare\blacksquare$

6. $89 = 89.\blacksquare\blacksquare$

Write a decimal in hundredths that has the same value.

7. 67

8. 99

9. 24.4

10. 0.1

Copy and complete. Use $<$ or $>$.

11. $53.6 \blacksquare 53.06$

12. $19 \blacksquare 18.75$

13. $0.04 \blacksquare 0.4$

14. $21.09 \blacksquare 22.08$

15. $4.5 \blacksquare 4.39$

16. $27.2 \blacksquare 28.1$

17. $3.7 \blacksquare 3.07$

18. $65 \blacksquare 64.01$

19. $46.09 \blacksquare 47$

20. $9.6 \blacksquare 8.76$

21. $44.08 \blacksquare 44.8$

22. $57 \blacksquare 56.99$

Write in order from smallest to largest.

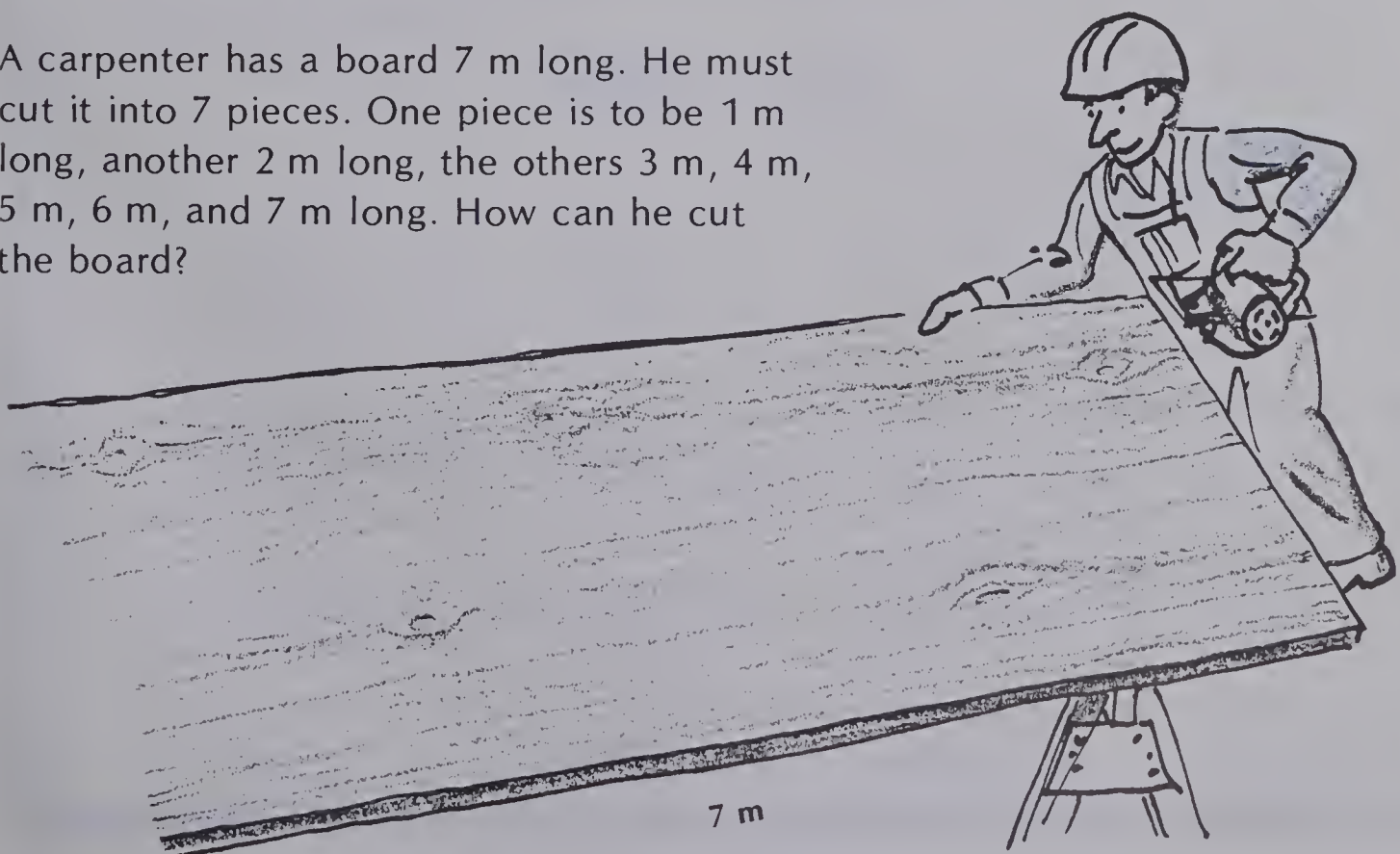
23. 1.2, 12, 1.02, 2.1, 21, 2.01

24. 3.3, 0.33, 33.3, 3.03, 33, 30.3

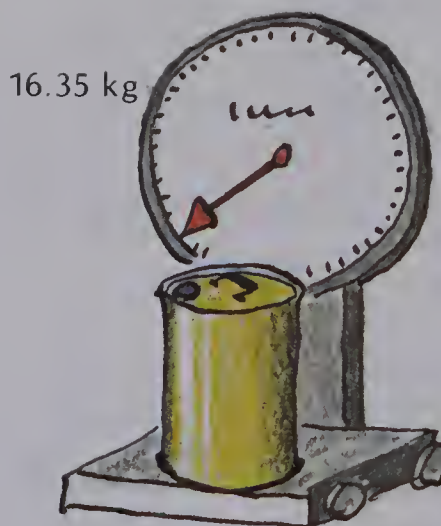
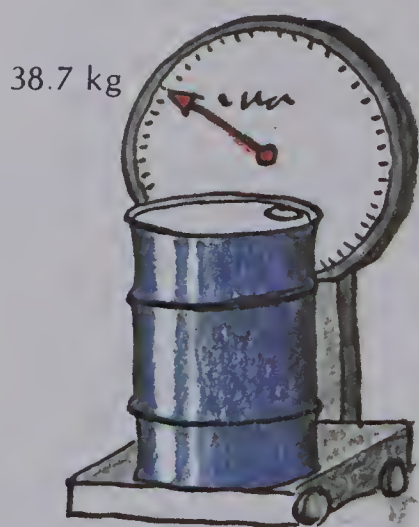
25. 76, 0.76, 7.6, 6.07, 6.7, 0.67

Saw Seven Sections

A carpenter has a board 7 m long. He must cut it into 7 pieces. One piece is to be 1 m long, another 2 m long, the others 3 m, 4 m, 5 m, 6 m, and 7 m long. How can he cut the board?



Rounding Decimals



How heavy are the barrels to the nearest kilogram?



38.7 kg rounded to the nearest **kilogram** is 39 kg.



16.35 kg rounded to the nearest **kilogram** is 16 kg.

EXERCISES

Round to the nearest whole number.

- | | | | |
|---------|-----------|-----------|----------|
| 1. 5.2 | 2. 96.5 | 3. 6.9 | 4. 39.7 |
| 5. 0.3 | 6. 0.8 | 7. 0.50 | 8. 0.2 |
| 9. 4.27 | 10. 63.81 | 11. 94.53 | 12. 0.91 |

Round to the nearest kilogram.

- | | | | |
|-------------|------------|-------------|-------------|
| 13. 56.8 kg | 14. 9.2 kg | 15. 65.5 kg | 16. 3.25 kg |
|-------------|------------|-------------|-------------|

Round to the nearest centimetre.

- | | | | |
|------------|-------------|--------------|-------------|
| 17. 5.8 cm | 18. 31.3 cm | 19. 18.02 cm | 20. 99.5 cm |
|------------|-------------|--------------|-------------|

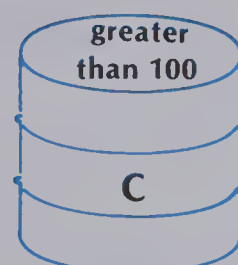
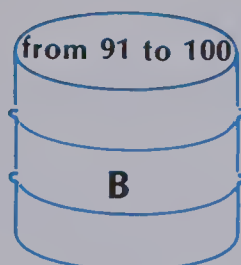
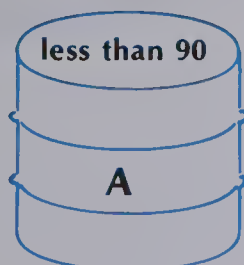
Round to the nearest dollar.

- | | | | |
|-------------|-------------|-------------|-------------|
| 21. \$16.75 | 22. \$48.09 | 23. \$33.56 | 24. \$79.50 |
|-------------|-------------|-------------|-------------|

PRACTICE

Round to the nearest whole number. Write the letter of the barrel into which the rounded number falls.

1. 99.92 2. 101.38 3. 100.19 4. 89.61 5. 99.49
6. 91.3 7. 90.74 8. 89.47 9. 90.5 10. 100.5



Round to the nearest metre.

11. 92.6 m 12. 57.5 m 13. 5.41 m 14. 6.8 m 15. 2.09 m

Round to the nearest dollar.

16. \$76.28 17. \$95.55 18. \$9.05 19. \$21.84 20. \$3.65

REVIEW

N5

Write the decimal.

1. nine tenths

2.



3.

$$\frac{7}{10}$$

4.



N6

5. $\frac{35}{100}$

6. $\frac{9}{100}$

7. $\frac{1}{100}$

8. $\frac{30}{100}$

N7

9. four and three tenths

10. sixty-six and seven hundredths

N8

Copy and complete. Use $<$ or $>$.

11. 4.2 \blacksquare 4.3

12. 7.10 \blacksquare 7.01

13. 35.19 \blacksquare 35.29

N9

14. 6.03 \blacksquare 6.3

15. 38 \blacksquare 37.2

16. 15.01 \blacksquare 15

N10

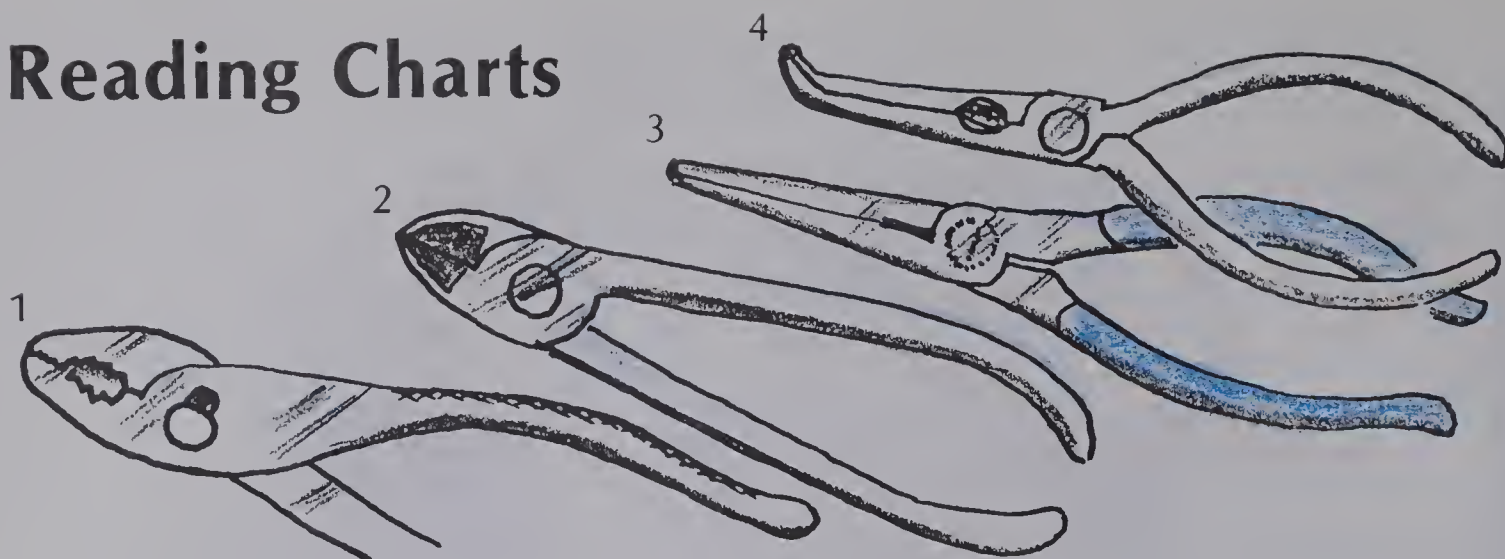
Round to the nearest whole number.

17. 0.5

18. 6.19

19. 23.61

Reading Charts



	Length	Price	Length	Price
1 Slip-joint pliers	15.2 cm	\$1.99	20.3 cm	\$3.99
2 Cutting pliers	11.4 cm	\$5.49	17.8 cm	\$6.99
3 Long-nose pliers	14.0 cm	\$5.99	20.3 cm	\$6.99
4 Side-cutting pliers	16.5 cm	\$6.99		

EXERCISES

Answer these questions from the information in the chart.

- Which price is the lowest? List the prices from lowest to highest.
- Which length is the shortest? List the lengths from shortest to longest.
- Which pliers comes in only one length?
- What is the price of the 17.8 cm cutting pliers?
- What is the price of the 16.5 cm side-cutting pliers?
- What is the length of the \$3.99 slip-joint pliers?
- What is the length of the \$5.99 long-nose pliers?
- Which is longer, the \$6.99 side-cutting pliers or the \$6.99 cutting pliers?
- Which is longer, the \$1.99 slip-joint pliers or the \$5.99 long-nose pliers?
- Which is more expensive, the 20.3 cm slip-joint pliers or the 20.3 cm long-nose pliers?

TEST

UNIT 1

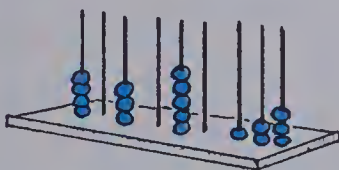
Write in expanded form.

1. 7215
2. 25 391
3. 947 208
4. 4 007 682
5. 296 000 011

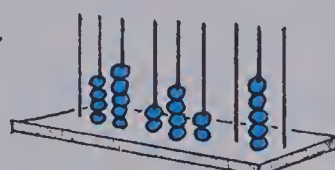
Write in standard form.

6. $20\ 000 + 3000 + 70 + 1$
7. five hundred fourteen thousand sixty
8. twenty-eight million one hundred thousand seventeen

9.



10.



Write the place value of the underlined digit.

11. 235 162 421
12. 198 271 425

Copy and complete. Use $<$, $>$, or $=$.

13. 20 196 \blacksquare 20 916
14. 42 075 300 \blacksquare 42 175 300

Round each number to the nearest ten, to the nearest hundred, and to the nearest thousand.

15. 3876
16. 705 982
17. 56 095

Write the decimal.

18. four tenths
19. five hundredths
20. seven and twelve hundredths
21. forty and nine tenths
22. twenty-one and three hundredths

Copy and complete. Use $<$, $=$ or $>$.

23. 876.4 \blacksquare 876.04
24. 92.57 \blacksquare 92.75
25. 2.5 \blacksquare 2.49

Round to the nearest whole number.

26. 26.5
27. 145.37
28. 267.92

UNIT 2

ADDITION & SUBTRACTION



Cross-Number Puzzles

Each square below is an addition puzzle.
Copy and complete the puzzle.



Add across →

Add down ↓

4	3	7
2	5	7
6	8	14

1.

5	2	
3	1	

2.

2	1	
3	4	

3.

7	2	
1	5	

4.

1	0	
0	1	

5.

8	2	
3	7	

6.

5		8
4		9
9	8	

7.

7		10
8		9
	4	

8.

6		10
	3	5
	7	

9.

6		9
	4	
		18

10.

	3	
6		
	8	17

11.

7		
	4	
9		16

Two-Place Addition

What is Valley School's total score?

	First Half	Second Half
Valley School	32	24
Brébeuf	26	27

32
+ 24

Add ones.

$$\begin{array}{r} 32 \\ + 24 \\ \hline 6 \end{array}$$

Add tens.

$$\begin{array}{r} 32 \\ + 24 \\ \hline 56 \end{array}$$

Valley School's total score is 56.

What is Brébeuf's total score?

26
+ 27

Add ones.

$$\begin{array}{r} 1 \\ 26 \\ + 27 \\ \hline 3 \end{array}$$

Add tens.

$$\begin{array}{r} 1 \\ 26 \\ + 27 \\ \hline 53 \end{array}$$

Brébeuf's total score is 53.



EXERCISES

Add.

1. $\begin{array}{r} 21 \\ + 32 \\ \hline \end{array}$

2. $\begin{array}{r} 15 \\ + 23 \\ \hline \end{array}$

3. $\begin{array}{r} 82 \\ + 16 \\ \hline \end{array}$

4. $\begin{array}{r} 36 \\ + 43 \\ \hline \end{array}$

5. $\begin{array}{r} 27 \\ + 32 \\ \hline \end{array}$

6. $\begin{array}{r} 4 \\ + 8 \\ \hline \end{array}$

7. $\begin{array}{r} 24 \\ + 38 \\ \hline \end{array}$

8. $\begin{array}{r} 74 \\ + 18 \\ \hline \end{array}$

9. $\begin{array}{r} 48 \\ + 44 \\ \hline \end{array}$

10. $\begin{array}{r} 68 \\ + 24 \\ \hline \end{array}$

11. $\begin{array}{r} 19 \\ + 15 \\ \hline \end{array}$

12. $\begin{array}{r} 28 \\ + 35 \\ \hline \end{array}$

13. $\begin{array}{r} 34 \\ + 27 \\ \hline \end{array}$

14. $\begin{array}{r} 33 \\ + 17 \\ \hline \end{array}$

15. $\begin{array}{r} 35 \\ + 29 \\ \hline \end{array}$

16. $40 + 30$

17. $24 + 36$

18. $57 + 38$

PRACTICE

Add.

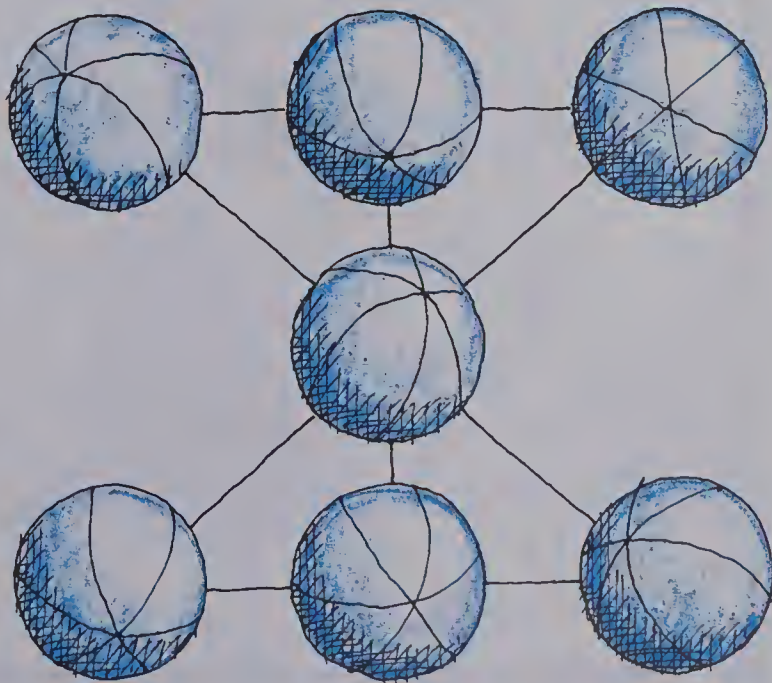
- | | | | | |
|---|---|---|---|---|
| 1. $\begin{array}{r} 41 \\ + 19 \\ \hline \end{array}$ | 2. $\begin{array}{r} 37 \\ + 16 \\ \hline \end{array}$ | 3. $\begin{array}{r} 73 \\ + 25 \\ \hline \end{array}$ | 4. $\begin{array}{r} 57 \\ + 28 \\ \hline \end{array}$ | 5. $\begin{array}{r} 67 \\ + 27 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 29 \\ + 24 \\ \hline \end{array}$ | 7. $\begin{array}{r} 29 \\ + 25 \\ \hline \end{array}$ | 8. $\begin{array}{r} 29 \\ + 26 \\ \hline \end{array}$ | 9. $\begin{array}{r} 57 \\ + 14 \\ \hline \end{array}$ | 10. $\begin{array}{r} 79 \\ + 18 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 42 \\ + 42 \\ \hline \end{array}$ | 12. $\begin{array}{r} 58 \\ + 23 \\ \hline \end{array}$ | 13. $\begin{array}{r} 27 \\ + 13 \\ \hline \end{array}$ | 14. $\begin{array}{r} 37 \\ + 23 \\ \hline \end{array}$ | 15. $\begin{array}{r} 47 \\ + 33 \\ \hline \end{array}$ |
| 16. $36 + 49$ | | | | |
| 17. $58 + 27$ | | 18. $45 + 35$ | | |

Solve.

19. Paul scored 38 points in the first game and 24 points in the second game. How many points did he score all together?
20. Mina played 14 minutes in the first game and 16 minutes in the second game. How many minutes did she play in all?
21. Write a story problem that can be solved by adding 28 and 35.

Basketball Bonanza

Copy the drawing. Write the numbers 1 to 7 on the basketballs so that the numbers in each row of three circles — vertical, horizontal, and diagonal — add up to 12. Use each number only once.



There are several possibilities.

Three-Place Addition

The shortstop has 224 base hits so far this season. The second baseman has 189 hits. How many hits do they have altogether?



Add ones.

Add tens.

Add hundreds.

$$\begin{array}{r} 224 \\ + 189 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ 224 \\ + 189 \\ \hline 3 \end{array}$$

$$\begin{array}{r} 11 \\ 224 \\ + 189 \\ \hline 13 \end{array}$$

$$\begin{array}{r} 11 \\ 224 \\ + 189 \\ \hline 413 \end{array}$$

$$\begin{array}{r} 11 \\ 224 \\ + 189 \\ \hline 413 \end{array}$$

Together they have 413 hits.

EXERCISES

Add.

1. $\begin{array}{r} 230 \\ + 341 \\ \hline \end{array}$

2. $\begin{array}{r} 729 \\ + 170 \\ \hline \end{array}$

3. $\begin{array}{r} 545 \\ + 218 \\ \hline \end{array}$

4. $\begin{array}{r} 327 \\ + 118 \\ \hline \end{array}$

5. $\begin{array}{r} 409 \\ + 328 \\ \hline \end{array}$

6. $\begin{array}{r} 230 \\ + 290 \\ \hline \end{array}$

7. $\begin{array}{r} 352 \\ + 272 \\ \hline \end{array}$

8. $\begin{array}{r} 98 \\ + 21 \\ \hline \end{array}$

9. $\begin{array}{r} 66 \\ + 82 \\ \hline \end{array}$

10. $\begin{array}{r} 47 \\ + 77 \\ \hline \end{array}$

11. $\begin{array}{r} 249 \\ + 298 \\ \hline \end{array}$

12. $\begin{array}{r} 478 \\ + 286 \\ \hline \end{array}$

13. $\begin{array}{r} 347 \\ + 277 \\ \hline \end{array}$

14. $\begin{array}{r} 525 \\ + 195 \\ \hline \end{array}$

15. $\begin{array}{r} 676 \\ + 288 \\ \hline \end{array}$

16. $329 + 516$

17. $752 + 164$

18. $495 + 326$

PRACTICE

Add.

- | | | | | |
|---|---|---|---|---|
| 1. $\begin{array}{r} 461 \\ + 234 \\ \hline \end{array}$ | 2. $\begin{array}{r} 328 \\ + 333 \\ \hline \end{array}$ | 3. $\begin{array}{r} 252 \\ + 363 \\ \hline \end{array}$ | 4. $\begin{array}{r} 474 \\ + 336 \\ \hline \end{array}$ | 5. $\begin{array}{r} 444 \\ + 366 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 314 \\ + 399 \\ \hline \end{array}$ | 7. $\begin{array}{r} 681 \\ + 275 \\ \hline \end{array}$ | 8. $\begin{array}{r} 303 \\ + 227 \\ \hline \end{array}$ | 9. $\begin{array}{r} 199 \\ + 299 \\ \hline \end{array}$ | 10. $\begin{array}{r} 505 \\ + 295 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 462 \\ + 393 \\ \hline \end{array}$ | 12. $\begin{array}{r} 112 \\ + 569 \\ \hline \end{array}$ | 13. $\begin{array}{r} 278 \\ + 212 \\ \hline \end{array}$ | 14. $\begin{array}{r} 569 \\ + 112 \\ \hline \end{array}$ | 15. $\begin{array}{r} 89 \\ + 41 \\ \hline \end{array}$ |
| 16. $\begin{array}{r} 585 \\ + 363 \\ \hline \end{array}$ | 17. $\begin{array}{r} 370 \\ + 81 \\ \hline \end{array}$ | 18. $\begin{array}{r} 588 \\ + 26 \\ \hline \end{array}$ | 19. $\begin{array}{r} 247 \\ + 505 \\ \hline \end{array}$ | 20. $\begin{array}{r} 794 \\ + 76 \\ \hline \end{array}$ |

21. $754 + 692$

22. $645 + 28$

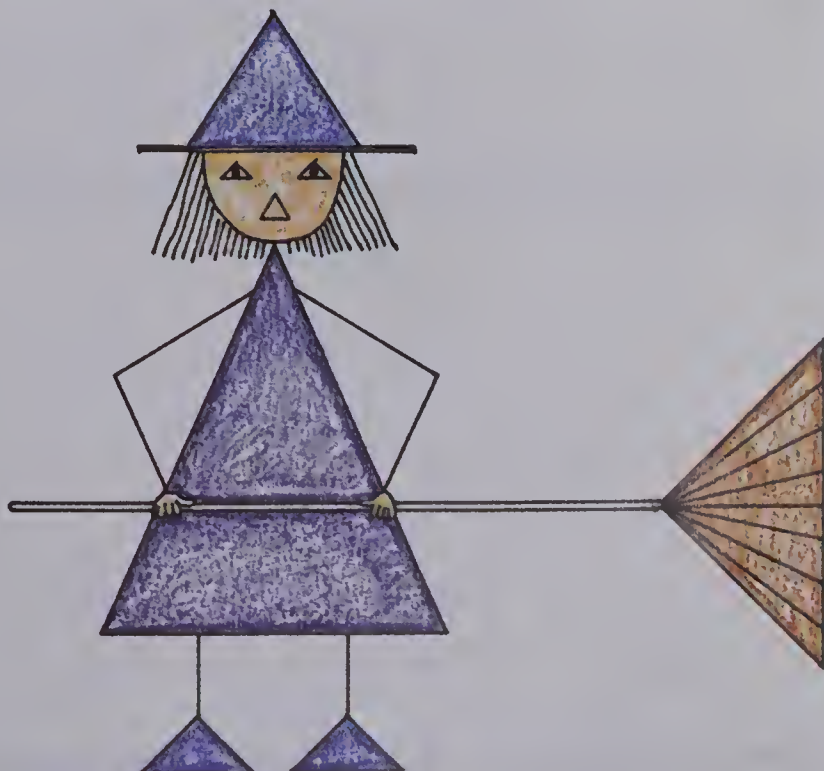
23. $574 + 96$

Solve.

24. On Friday, 452 people watched the little league game. On Saturday, 374 people watched. How many people watched on both days?

Three-Sided Witch

How many triangles can you find?



Now draw a "three-sided cat".

Three Addends

What was the total number of shots on goal for the Canucks?



Shots on Goal		
	Vancouver Canucks	Montreal Canadiens
Period 1	18	15
Period 2	14	17
Period 3	12	13

Add 8 ones
and 4 ones.

Add 12 ones
and 2 ones.

Add tens.

$$\begin{array}{r} 18 \\ 14 \\ + 12 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ 14 \\ + 12 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ 14 \\ + 12 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 18 \\ 14 \\ + 12 \\ \hline 44 \end{array}$$

$$\begin{array}{r} 18 \\ 14 \\ + 12 \\ \hline 44 \end{array}$$

The Canucks had 44 shots on goal.

EXERCISES

Add.

1.
$$\begin{array}{r} 6 \\ + 3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 16 \\ + 3 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 7 \\ 9 \\ + 3 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 5 \\ + 4 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 15 \\ + 4 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 6 \\ 9 \\ + 4 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 5 \\ 7 \\ + 6 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 7 \\ 3 \\ + 5 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 5 \\ 8 \\ + 7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 9 \\ 8 \\ + 7 \\ \hline \end{array}$$

11. $4 + 6 + 8$

12. $7 + 4 + 5$

13. $7 + 9 + 3$

14.
$$\begin{array}{r} 12 \\ 13 \\ + 14 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 46 \\ 63 \\ + 59 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 25 \\ 55 \\ + 47 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 63 \\ 89 \\ + 58 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 48 \\ 76 \\ + 27 \\ \hline \end{array}$$

PRACTICE

Add.

$$\begin{array}{r} 1. \quad 4 \\ 3 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 4 \\ 5 \\ + 7 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 5 \\ 7 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 5 \\ 5 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 5 \\ 6 \\ + 4 \\ \hline \end{array}$$

$$6. \quad 3 + 9 + 7$$

$$7. \quad 6 + 7 + 2$$

$$8. \quad 4 + 8 + 9$$

$$\begin{array}{r} 9. \quad 12 \\ 46 \\ + 11 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 84 \\ 47 \\ + 62 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 29 \\ 24 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 75 \\ 46 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 38 \\ 37 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 77 \\ 66 \\ + 55 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 28 \\ 82 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 56 \\ 89 \\ + 11 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 17 \\ 8 \\ + 29 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 62 \\ 7 \\ + 13 \\ \hline \end{array}$$

$$19. \quad 12 + 9 + 41$$

$$20. \quad 53 + 19 + 2$$

$$21. \quad 45 + 7 + 12$$

Solve.

22. Ivan's hockey team has 2 goalies, 6 defencemen, and 9 forwards. How many players are on his team?
23. What is the total number of shots on goal for the Montreal Canadiens? (Use the chart on p. 30.)

Magic Square

Which square is a *magic square*? Write the magic sum.

A.

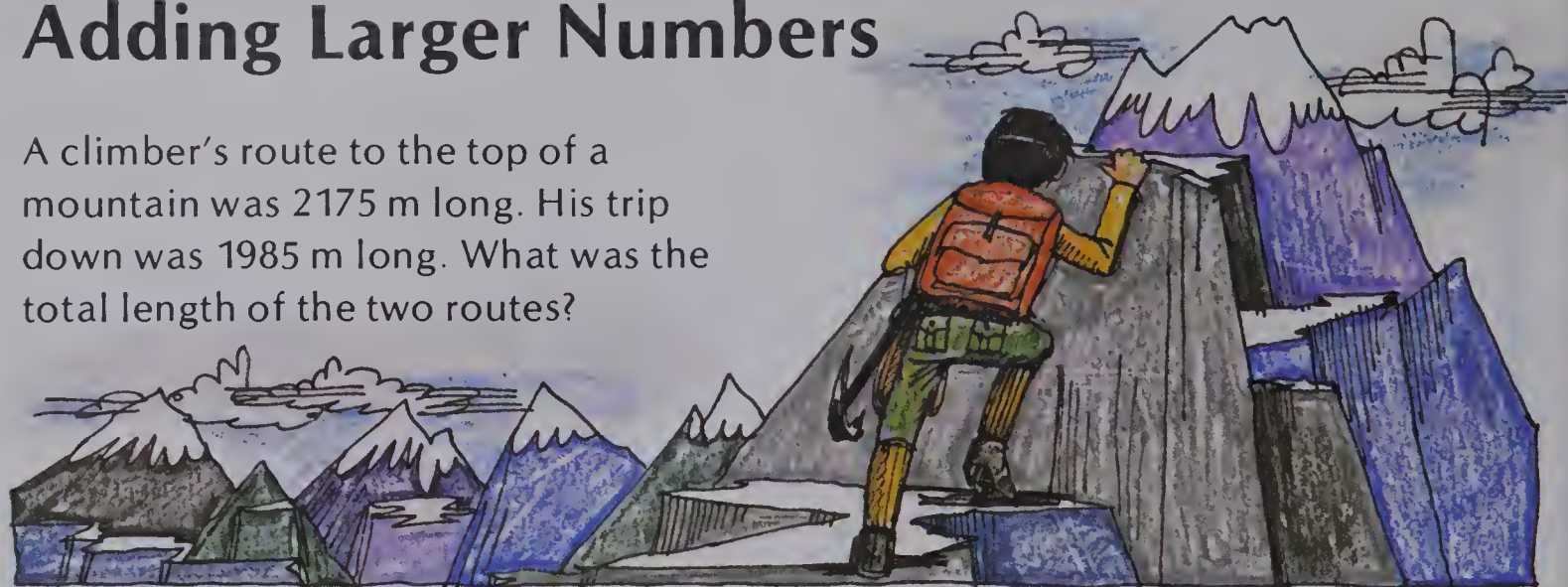
55	62	57
60	58	56
59	54	61

B.

55	57	62
60	58	56
59	54	61

Adding Larger Numbers

A climber's route to the top of a mountain was 2175 m long. His trip down was 1985 m long. What was the total length of the two routes?



Add ones.

Add tens.

Add hundreds. Add thousands.

$$\begin{array}{r} 2175 \\ + 1985 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ 2175 \\ + 1985 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 11 \\ 2175 \\ + 1985 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 111 \\ 2175 \\ + 1985 \\ \hline 160 \end{array}$$

$$\begin{array}{r} 111 \\ 2175 \\ + 1985 \\ \hline 4160 \end{array}$$

The total length of the two routes was 4160 m.

EXERCISES

Add.

1. $\begin{array}{r} 3438 \\ + 2149 \\ \hline \end{array}$

2. $\begin{array}{r} 1137 \\ + 5491 \\ \hline \end{array}$

3. $\begin{array}{r} 2831 \\ + 4203 \\ \hline \end{array}$

4. $\begin{array}{r} 4375 \\ + 2106 \\ \hline \end{array}$

5. $\begin{array}{r} 3951 \\ + 4322 \\ \hline \end{array}$

6. $\begin{array}{r} 8461 \\ + 757 \\ \hline \end{array}$

7. $\begin{array}{r} 5871 \\ + 1453 \\ \hline \end{array}$

8. $\begin{array}{r} 752 \\ + 662 \\ \hline \end{array}$

9. $\begin{array}{r} 6375 \\ + 8166 \\ \hline \end{array}$

10. $\begin{array}{r} 3716 \\ + 6905 \\ \hline \end{array}$

11. $\begin{array}{r} 70152 \\ + 26940 \\ \hline \end{array}$

12. $\begin{array}{r} 19164 \\ + 62381 \\ \hline \end{array}$

13. $\begin{array}{r} 27519 \\ + 2506 \\ \hline \end{array}$

14. $\begin{array}{r} 43887 \\ + 1056 \\ \hline \end{array}$

15. $\begin{array}{r} 73274 \\ + 61315 \\ \hline \end{array}$

16. $\begin{array}{r} 39145 \\ + 82923 \\ \hline \end{array}$

17. $\begin{array}{r} 826 \\ 795 \\ + 477 \\ \hline \end{array}$

18. $\begin{array}{r} 65911 \\ 8435 \\ + 276 \\ \hline \end{array}$

PRACTICE

Add.

$$\begin{array}{r} 1. \quad 3756 \\ + 2134 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 4562 \\ + 3836 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 6544 \\ + 3456 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 2985 \\ + 3271 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 5172 \\ + 853 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 9953 \\ + 327 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 65\,184 \\ + 322 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 91\,585 \\ + 7\,493 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 26\,147 \\ + 35\,870 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 34\,921 \\ + 87\,032 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 67\,195 \\ \quad 236 \\ + 6\,141 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 49\,329 \\ \quad 58\,926 \\ + 135 \\ \hline \end{array}$$

Solve.

13. Linda skied down trail B and trail C one morning. How many metres did she ski in all?
14. Jeremy skied down trails A and B. How many metres was that in all?
15. Eric skied down all three trails. How many metres was that in all?



REVIEW

Add.

A1

$$1. \quad 36 + 29$$

$$2. \quad 55 + 37$$

$$3. \quad 62 + 17$$

A2

$$\begin{array}{r} 4. \quad 524 \\ + 175 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 242 \\ + 398 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 84 \\ + 906 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 65 \\ + 96 \\ \hline \end{array}$$

A3

$$8. \quad 9 + 6 + 4$$

$$9. \quad 86 + 27 + 32$$

$$10. \quad 45 + 9 + 26$$

A4

$$\begin{array}{r} 11. \quad 4135 \\ + 1672 \\ \hline \end{array}$$

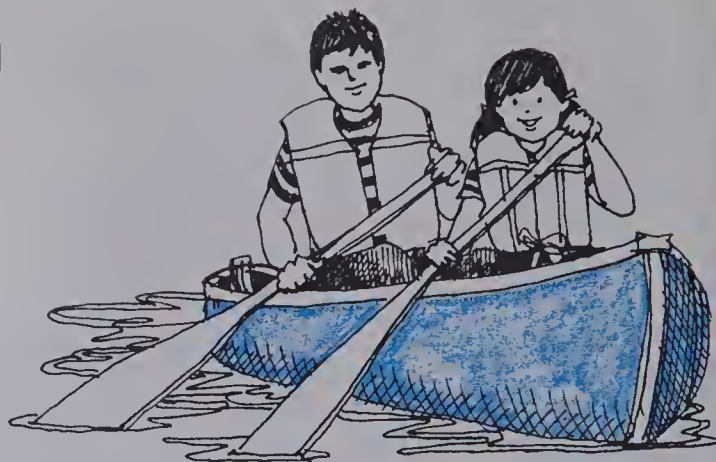
$$\begin{array}{r} 12. \quad 73\,123 \\ + 11\,962 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 6773 \\ + 342 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 29\,516 \\ + 398 \\ \hline \end{array}$$

Two-Place Subtraction

Marta and her father are on a 37 km canoe trip. They have travelled 19 km so far. How much farther do they have to go?



Regroup tens and ones.

Subtract ones.

Subtract tens.

$$\begin{array}{r} 37 \\ - 19 \\ \hline \end{array}$$

$$\begin{array}{r} 2\ 17 \\ \cancel{3}\ \cancel{7} \\ - 19 \\ \hline \end{array}$$

$$\begin{array}{r} 2\ 17 \\ \cancel{3}\ \cancel{7} \\ - 19 \\ \hline 8 \end{array}$$

$$\begin{array}{r} 2\ 17 \\ \cancel{3}\ \cancel{7} \\ - 19 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 2\ 17 \\ \cancel{3}\ \cancel{7} \\ - 19 \\ \hline 18 \end{array}$$

They have 18 km left to go.

Check: $18 + 19 = 37$

EXERCISES

Subtract.

1. $\begin{array}{r} 82 \\ - 9 \\ \hline \end{array}$

2. $\begin{array}{r} 32 \\ - 9 \\ \hline \end{array}$

3. $\begin{array}{r} 52 \\ - 19 \\ \hline \end{array}$

4. $\begin{array}{r} 72 \\ - 39 \\ \hline \end{array}$

5. $\begin{array}{r} 92 \\ - 69 \\ \hline \end{array}$

6. $\begin{array}{r} 25 \\ - 7 \\ \hline \end{array}$

7. $\begin{array}{r} 45 \\ - 7 \\ \hline \end{array}$

8. $\begin{array}{r} 65 \\ - 17 \\ \hline \end{array}$

9. $\begin{array}{r} 95 \\ - 37 \\ \hline \end{array}$

10. $\begin{array}{r} 55 \\ - 47 \\ \hline \end{array}$

11. $\begin{array}{r} 34 \\ - 17 \\ \hline \end{array}$

12. $\begin{array}{r} 73 \\ - 54 \\ \hline \end{array}$

13. $\begin{array}{r} 88 \\ - 57 \\ \hline \end{array}$

14. $\begin{array}{r} 60 \\ - 32 \\ \hline \end{array}$

15. $\begin{array}{r} 80 \\ - 41 \\ \hline \end{array}$

16. $\begin{array}{r} 71 \\ - 26 \\ \hline \end{array}$

17. $\begin{array}{r} 42 \\ - 29 \\ \hline \end{array}$

18. $\begin{array}{r} 66 \\ - 38 \\ \hline \end{array}$

19. $\begin{array}{r} 90 \\ - 47 \\ \hline \end{array}$

20. $\begin{array}{r} 58 \\ - 47 \\ \hline \end{array}$

Subtract. Check by adding.

21. $73 - 58$

22. $50 - 22$

23. $67 - 19$

24. $81 - 47$

PRACTICE

Find the difference.

$$\begin{array}{r} 1. \quad 90 \\ - 26 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 66 \\ - 59 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 31 \\ - 18 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 60 \\ - 37 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 75 \\ - 65 \\ \hline \end{array}$$

$$6. \quad 90 - 17$$

$$7. \quad 81 - 42$$

$$8. \quad 63 - 36$$

$$9. \quad 48 - 29$$

$$\begin{array}{r} 10. \quad 82 \\ - 46 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 75 \\ - 64 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 71 \\ - 49 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 86 \\ - 27 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 91 \\ - 38 \\ \hline \end{array}$$

Subtract. Check by adding.

$$15. \quad 50 - 14$$

$$16. \quad 63 - 48$$

$$17. \quad 85 - 46$$

$$18. \quad 93 - 57$$

$$\begin{array}{r} 19. \quad 48 \\ - 39 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 65 \\ - 27 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 35 \\ - 9 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 88 \\ - 18 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 66 \\ - 49 \\ \hline \end{array}$$

Solve.

24. Peter canoed 19 km, while Nick canoed 23 km.
How much farther did Nick canoe?

25. Forty-two boys and twenty-three girls went canoeing.
How many more boys than girls went canoeing?

26. Jenny and Lynn paddled upstream for 45 min and
then paddled back to camp. The trip took them an
hour. How long did it take them to paddle back?

Letter Logic

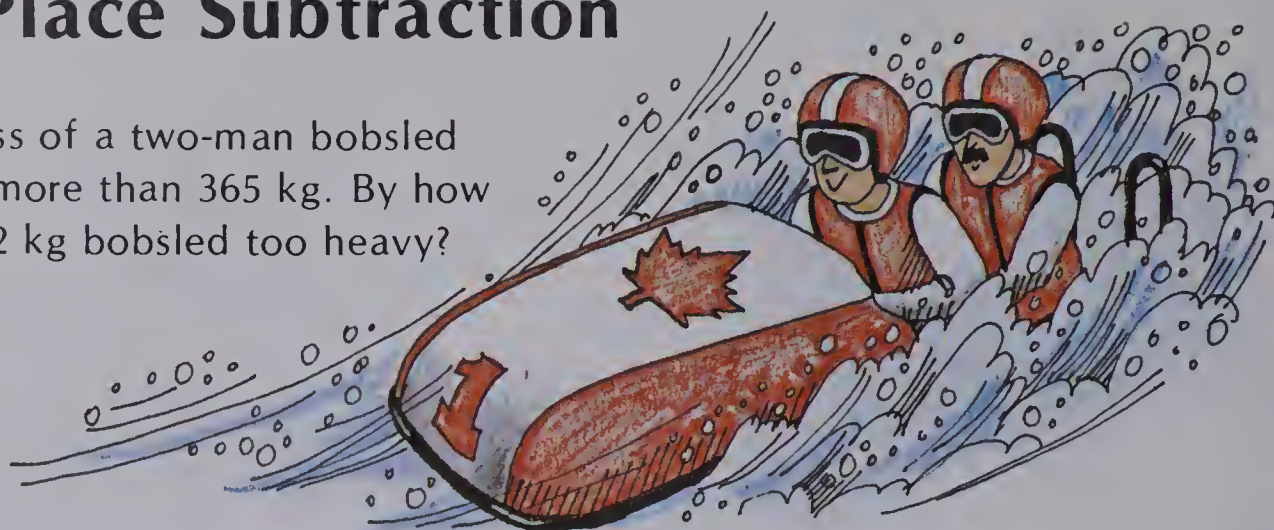
Each different letter below stands for a different digit.
Discover the code and rewrite the problems with
numerals.

$$\begin{array}{r} DD \\ + EE \\ \hline CEC \end{array}$$

$$\begin{array}{r} B6B \\ + B6C \\ \hline CCE6 \end{array}$$

Three-Place Subtraction

The total mass of a two-man bobsled must not be more than 365 kg. By how much is a 392 kg bobsled too heavy?



Regroup tens
and ones.

Subtract
ones.

Subtract
tens.

Subtract
hundreds.

$$\begin{array}{r} 392 \\ - 365 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \ 12 \\ 3 \cancel{9} \cancel{2} \\ - 3 \ 6 \ 5 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \ 12 \\ 3 \cancel{9} \cancel{2} \\ - 3 \ 6 \ 5 \\ \hline 7 \end{array}$$

$$\begin{array}{r} 8 \ 12 \\ 3 \cancel{9} \cancel{2} \\ - 3 \ 6 \ 5 \\ \hline 2 \ 7 \end{array}$$

$$\begin{array}{r} 8 \ 12 \\ 3 \cancel{9} \cancel{2} \\ - 3 \ 6 \ 5 \\ \hline 2 \ 7 \end{array}$$

The 392 kg bobsled is 27 kg too heavy.

Check: $365 + 27 = 392$

EXERCISES

Subtract.

1. $\begin{array}{r} 35 \\ - 19 \\ \hline \end{array}$

2. $\begin{array}{r} 435 \\ - 219 \\ \hline \end{array}$

3. $\begin{array}{r} 62 \\ - 29 \\ \hline \end{array}$

4. $\begin{array}{r} 762 \\ - 129 \\ \hline \end{array}$

5. $\begin{array}{r} 862 \\ - 529 \\ \hline \end{array}$

6. $51 - 33$

7. $451 - 233$

8. $70 - 39$

9. $870 - 639$

10. $\begin{array}{r} 437 \\ - 250 \\ \hline \end{array}$

11. $\begin{array}{r} 569 \\ - 184 \\ \hline \end{array}$

12. $\begin{array}{r} 345 \\ - 27 \\ \hline \end{array}$

13. $\begin{array}{r} 163 \\ - 54 \\ \hline \end{array}$

14. $\begin{array}{r} 323 \\ - 105 \\ \hline \end{array}$

15. $\begin{array}{r} 702 \\ - 273 \\ \hline \end{array}$

16. $\begin{array}{r} 625 \\ - 329 \\ \hline \end{array}$

17. $\begin{array}{r} 702 \\ - 273 \\ \hline \end{array}$

18. $\begin{array}{r} 501 \\ - 199 \\ \hline \end{array}$

19. $\begin{array}{r} 800 \\ - 198 \\ \hline \end{array}$

Subtract. Check by adding.

20. $461 - 88$

21. $711 - 352$

22. $400 - 267$

23. $900 - 638$

PRACTICE

Find the difference.

1.
$$\begin{array}{r} 732 \\ - 124 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 747 \\ - 385 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 668 \\ - 392 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 582 \\ - 264 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 721 \\ - 209 \\ \hline \end{array}$$

6. $631 - 287$

7. $760 - 258$

8. $821 - 388$

9. $552 - 238$

10.
$$\begin{array}{r} 531 \\ - 299 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 612 \\ - 207 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 700 \\ - 383 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 925 \\ - 498 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 500 \\ - 452 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 742 \\ - 355 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 800 \\ - 689 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 932 \\ - 785 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 408 \\ - 68 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 600 \\ - 79 \\ \hline \end{array}$$

Subtract. Check by adding.

20. $623 - 259$

21. $509 - 243$

22. $600 - 154$

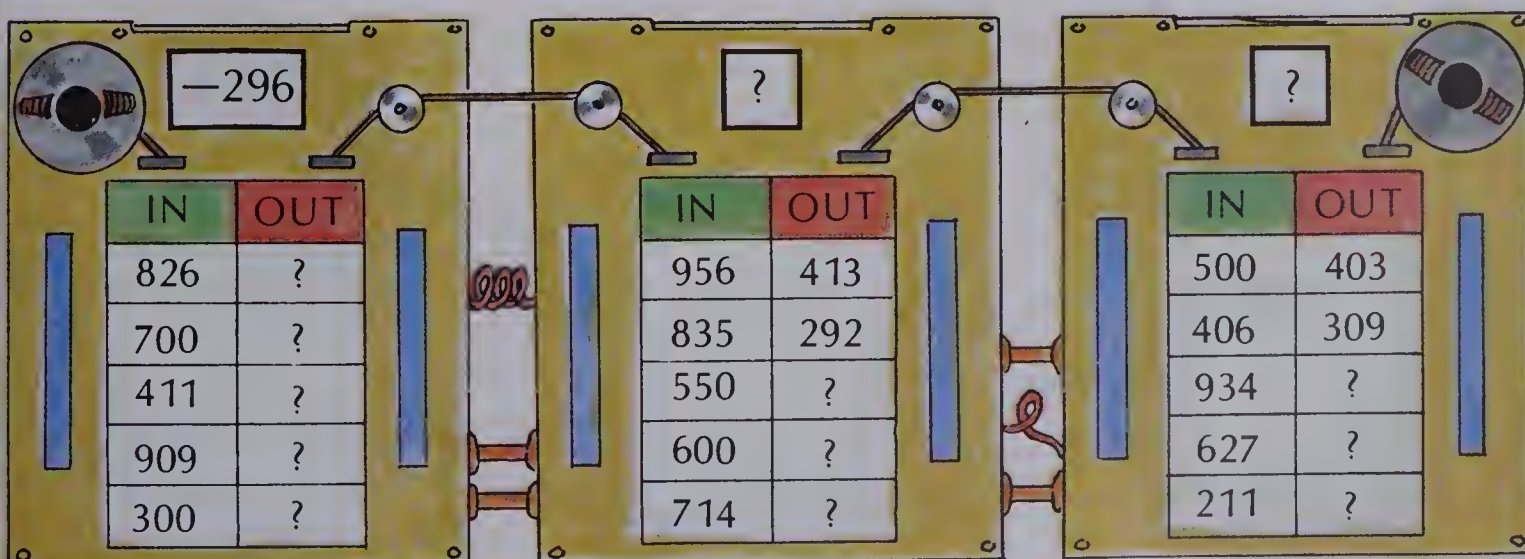
23. $764 - 388$

Solve.

24. Seven hundred thirty-four people watched the bobsled race. Two hundred ninety-six were youths. How many were adults?

25. Two bobsled helmets regularly cost \$130. On sale they cost \$39 less. How much do the helmets cost on sale?

Computer Tutor



Subtracting Larger Numbers

How many more points did the 1980 winner have than the 1964 winner?

Decathlon Olympic Gold Medalists		
1964	Willi Holdorf (Germany)	7887 points
1968	Bill Toomey (U.S.A.)	8193 points
1972	Nikolai Avilov (U.S.S.R.)	8454 points
1976	Bruce Jenner (U.S.A.)	8618 points
1980	Daley Thompson (Great Britain)	8495 points

Regroup? **Yes**
Subtract ones.

$$\begin{array}{r} 815 \\ 84\cancel{9}8 \\ - 7887 \\ \hline 8 \end{array}$$

Regroup? **No**
Subtract tens.

$$\begin{array}{r} 815 \\ 84\cancel{9}8 \\ - 7887 \\ \hline 08 \end{array}$$

Regroup? **Yes**
Subtract hundreds.

$$\begin{array}{r} 714815 \\ \cancel{8}\cancel{4}\cancel{9}8 \\ - 7887 \\ \hline 608 \end{array}$$

Subtract thousands.

$$\begin{array}{r} 714815 \\ \cancel{8}\cancel{4}\cancel{9}8 \\ - 7887 \\ \hline 608 \end{array}$$

The 1980 winner had 608 more points.

EXERCISES

Subtract.

1. $\begin{array}{r} 3728 \\ - 1493 \\ \hline \end{array}$

2. $\begin{array}{r} 7562 \\ - 4271 \\ \hline \end{array}$

3. $\begin{array}{r} 6439 \\ - 5268 \\ \hline \end{array}$

4. $\begin{array}{r} 8471 \\ - 2225 \\ \hline \end{array}$

5. $\begin{array}{r} 4762 \\ - 1891 \\ \hline \end{array}$

6. $\begin{array}{r} 5982 \\ - 2195 \\ \hline \end{array}$

7. $\begin{array}{r} 8634 \\ - 6892 \\ \hline \end{array}$

8. $\begin{array}{r} 6483 \\ - 4525 \\ \hline \end{array}$

9. $\begin{array}{r} 7531 \\ - 876 \\ \hline \end{array}$

10. $\begin{array}{r} 4250 \\ - 2481 \\ \hline \end{array}$

11. $\begin{array}{r} 6705 \\ - 967 \\ \hline \end{array}$

12. $\begin{array}{r} 9132 \\ - 798 \\ \hline \end{array}$

Subtract. Check by adding.

13. $\begin{array}{r} 9001 \\ - 7862 \\ \hline \end{array}$

14. $\begin{array}{r} 7000 \\ - 427 \\ \hline \end{array}$

15. $\begin{array}{r} 5009 \\ - 2139 \\ \hline \end{array}$

16. $\begin{array}{r} 6050 \\ - 2974 \\ \hline \end{array}$

PRACTICE

Find the difference.

$$\begin{array}{r} 1. \quad 5402 \\ - 2347 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 8000 \\ - 5389 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 7016 \\ - 6244 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 7620 \\ - 2417 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 7724 \\ - 3583 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 7804 \\ - 2346 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 5327 \\ - 2456 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 6003 \\ - 3539 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 4000 \\ - 2717 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 9530 \\ - 3763 \\ \hline \end{array}$$

Subtract. Check by adding.

$$\begin{array}{r} 11. \quad 4235 \\ - 740 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 2459 \\ - 570 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 1000 \\ - 768 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 4002 \\ - 2354 \\ \hline \end{array}$$

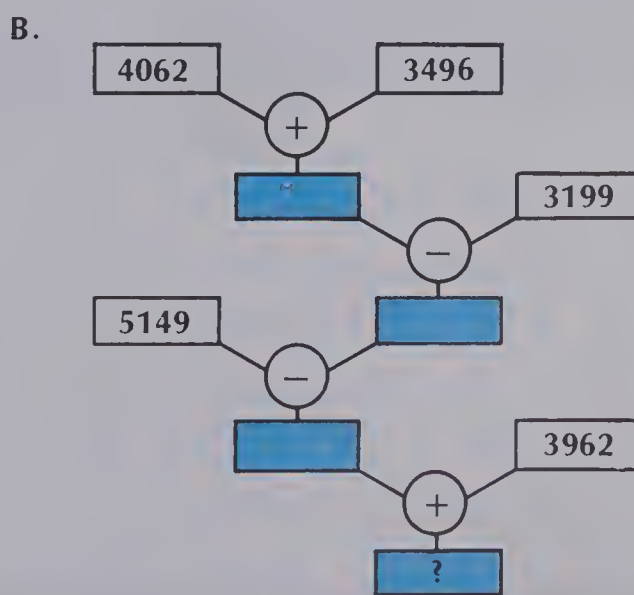
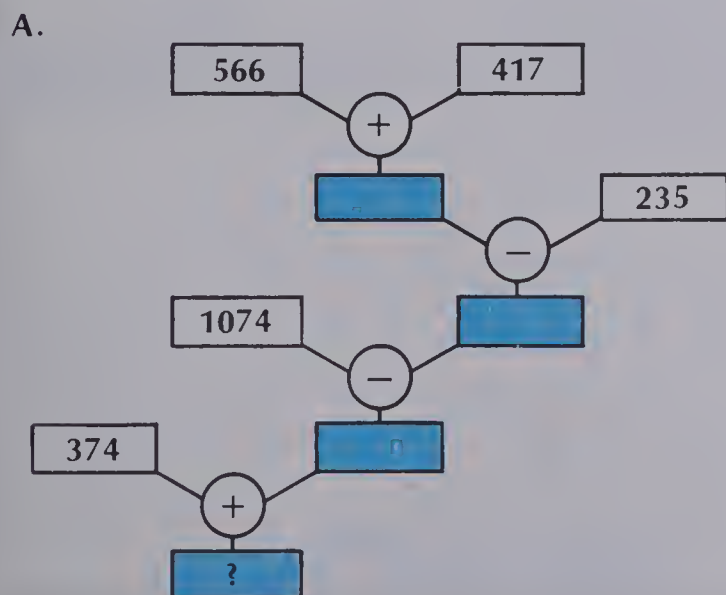
$$\begin{array}{r} 15. \quad 3000 \\ - 1347 \\ \hline \end{array}$$

Solve. Use the chart on page 38.

16. How many more points did Bruce Jenner have than Bill Toomey?
17. How many more points did Nikolai Avilov have than Willi Holdorf?
18. Who had fewer points, Bill Toomey or Willi Holdorf? How many fewer?

Math Hopscotch

Find the last number.



Adding and Subtracting Tenths

Russ jogged 3.4 km.

Then he walked 1.7 km.



How many kilometres did Russ travel altogether?

Keep the decimal points in a line.

$$\begin{array}{r} 1 \\ 3.4 \\ + 1.7 \\ \hline 5.1 \end{array}$$

He travelled 5.1 km altogether.

How much farther did he jog than walk?

Keep the decimal points in a line.

$$\begin{array}{r} 2 \quad 14 \\ \cancel{3.4} \\ - 1.7 \\ \hline 1.7 \end{array}$$

He jogged 1.7 km farther.

EXERCISES

Add.

$$\begin{array}{r} 1. \quad 0.2 \\ + 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 0.7 \\ + 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 0.4 \\ + 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 1.5 \\ + 6.6 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 17.8 \\ + 21.5 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 1.8 \\ + 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 19.2 \\ + 8.9 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 27.4 \\ + 4.7 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 21.3 \\ + 6.8 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 15.9 \\ + 4.8 \\ \hline \end{array}$$

$$11. \quad 0.7 + 1.4 + 0.6$$

$$12. \quad 9.5 + 6.7 + 0.8$$

$$13. \quad 42.6 + 81.4 + 62.3$$

Subtract.

$$\begin{array}{r} 14. \quad 9.6 \\ - 5.5 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 6.5 \\ - 3.2 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 7.3 \\ - 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 5.7 \\ - 2.4 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 4.2 \\ - 2.6 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 7.0 \\ - 4.8 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 2.0 \\ - 1.2 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 10.0 \\ - 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 50.0 \\ - 3.5 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 30.0 \\ - 1.4 \\ \hline \end{array}$$

PRACTICE

Add.

$$\begin{array}{r} 1. \quad 0.7 \\ + 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 4.8 \\ + 2.6 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 8.4 \\ + 2.7 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 17.9 \\ + 8.9 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 16.9 \\ + 3.7 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 0.4 \\ 0.6 \\ + 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 46.4 \\ 5.3 \\ + 12.3 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 19.2 \\ 6.0 \\ + 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 50.2 \\ 0.8 \\ + 3.9 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 41.1 \\ 0.9 \\ + 86.8 \\ \hline \end{array}$$

$$11. \quad 0.8 + 0.9 + 2.5$$

$$12. \quad 42.6 + 1.7 + 2.4$$

$$13. \quad 52.1 + 6.2 + 0.7$$

Subtract.

$$\begin{array}{r} 14. \quad 4.3 \\ - 3.7 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 15.7 \\ - 4.9 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 32.3 \\ - 14.6 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 100.4 \\ - 78.9 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 99.8 \\ - 9.9 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 10.1 \\ - 9.2 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 200.3 \\ - 14.7 \\ \hline \end{array}$$

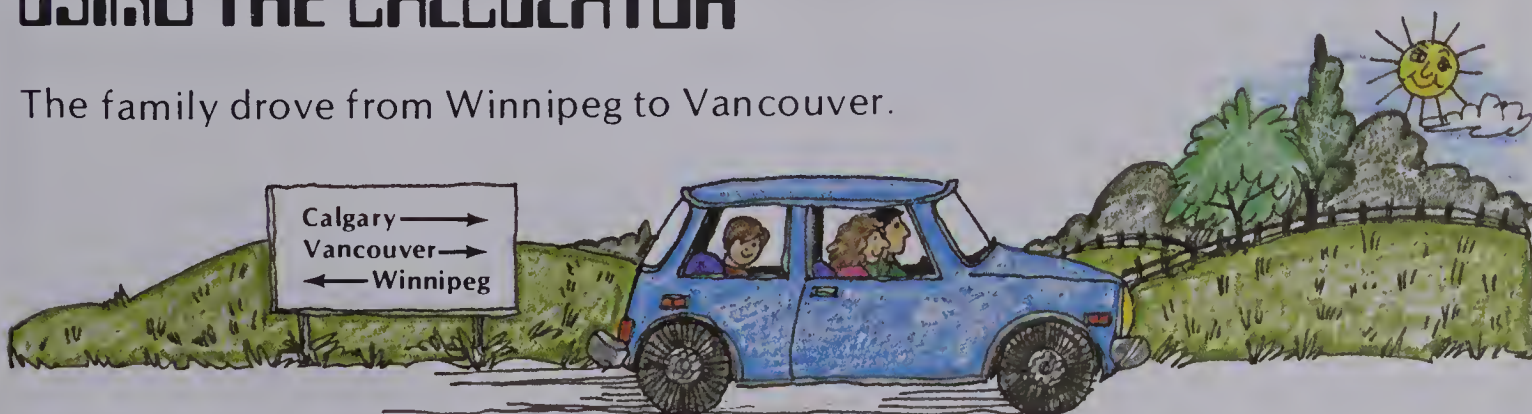
$$\begin{array}{r} 21. \quad 50.1 \\ - 9.4 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 11.1 \\ - 10.4 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 600.3 \\ - 74.6 \\ \hline \end{array}$$

USING THE CALCULATOR

The family drove from Winnipeg to Vancouver.



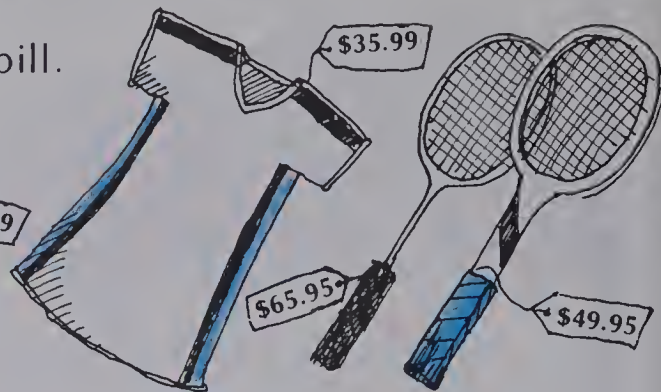
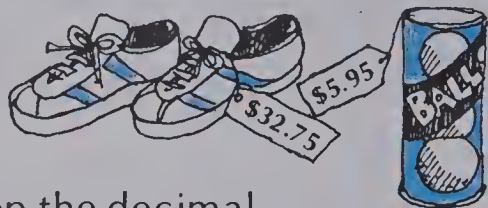
Day	kilometres travelled	litres of gas used
Monday	445	37.2
Tuesday	505	42.0
Wednesday	474	39.6
Thursday	433	36.0
Friday	375	31.2
total		

Use your calculator to find the answers.

- How many kilometres did they travel altogether?
- How many litres of gas were used in all?
- How many kilometres did they average each day?

Adding and Subtracting Hundredths

Brigit paid for a \$35.99 tennis dress with a \$50.00 bill.
How much change should she get?



Keep the decimal points in a line.

$$\begin{array}{r} \$50.00 \\ - 35.99 \\ \hline \end{array}$$

Regroup.

$$\begin{array}{r} 49910 \\ \$50.00 \\ - 35.99 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 49910 \\ \$50.00 \\ - 35.99 \\ \hline \$14.01 \end{array}$$

Brigit should get \$14.01 in change.

Check:

$$\begin{array}{r} \$35.99 \\ + 14.01 \\ \hline \$50.00 \end{array}$$

EXERCISES

Add.

1. $\begin{array}{r} 0.06 \\ + 0.09 \\ \hline \end{array}$

2. $\begin{array}{r} 0.08 \\ + 0.04 \\ \hline \end{array}$

3. $\begin{array}{r} 0.16 \\ + 0.09 \\ \hline \end{array}$

4. $\begin{array}{r} 0.25 \\ + 0.48 \\ \hline \end{array}$

5. $\begin{array}{r} \$1.42 \\ + 0.79 \\ \hline \end{array}$

6. $\begin{array}{r} \$5.79 \\ + 0.86 \\ \hline \end{array}$

7. $\begin{array}{r} \$42.05 \\ + 3.56 \\ \hline \end{array}$

8. $\begin{array}{r} \$91.29 \\ + 9.89 \\ \hline \end{array}$

Subtract.

9. $\begin{array}{r} 0.47 \\ - 0.39 \\ \hline \end{array}$

10. $\begin{array}{r} 0.18 \\ - 0.09 \\ \hline \end{array}$

11. $\begin{array}{r} 6.41 \\ - 0.58 \\ \hline \end{array}$

12. $\begin{array}{r} 9.75 \\ - 6.82 \\ \hline \end{array}$

Subtract. Check by adding.

13. $\begin{array}{r} \$14.00 \\ - 5.25 \\ \hline \end{array}$

14. $\begin{array}{r} \$24.00 \\ - 7.99 \\ \hline \end{array}$

15. $\begin{array}{r} \$52.00 \\ - 25.89 \\ \hline \end{array}$

16. $\begin{array}{r} \$40.00 \\ - 21.75 \\ \hline \end{array}$

PRACTICE

Add.

$$\begin{array}{r} 1. \quad 0.34 \\ + 0.25 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 0.78 \\ + 0.65 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 8.43 \\ + 0.27 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 19.62 \\ + 5.88 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad \$7.14 \\ \quad 3.22 \\ + 5.61 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \$6.71 \\ \quad 4.82 \\ + 6.14 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \$37.35 \\ \quad 6.13 \\ + 35.35 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad \$54.47 \\ \quad 5.68 \\ + 14.83 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 9. \quad 0.48 \\ - 0.21 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 0.82 \\ - 0.46 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 0.17 \\ - 0.08 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 7.82 \\ - 1.64 \\ \hline \end{array}$$

Subtract. Check by adding.

$$\begin{array}{r} 13. \quad \$9.30 \\ - 8.42 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 30.31 \\ - 27.91 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad \$4.00 \\ - 1.28 \\ \hline \end{array}$$

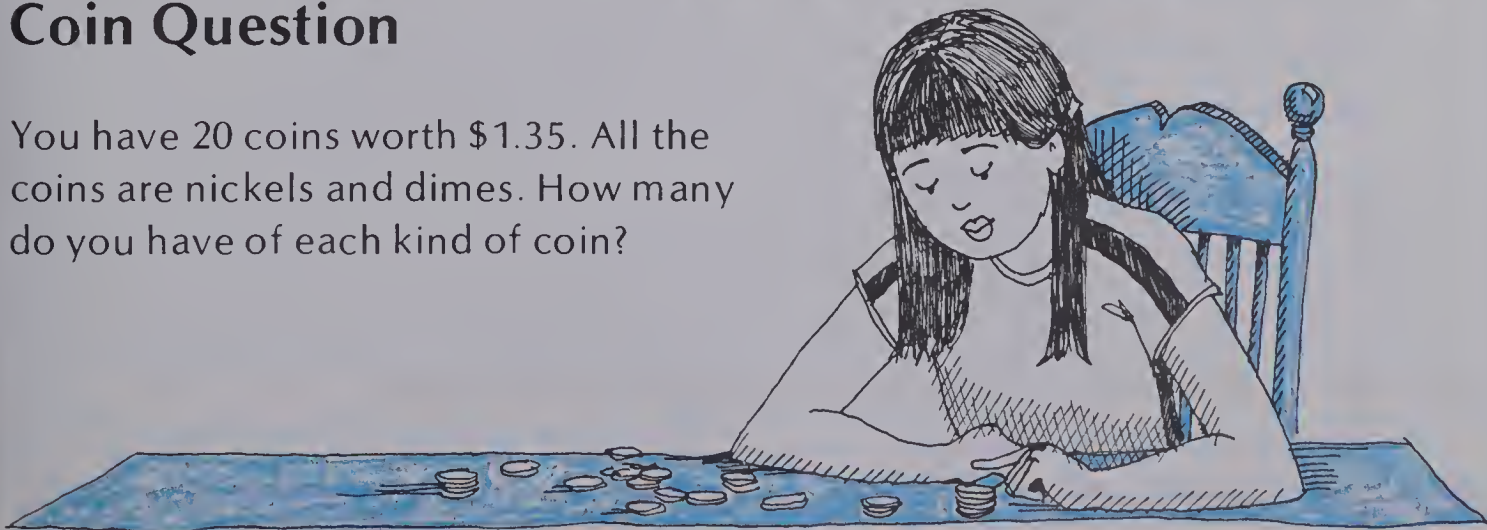
$$\begin{array}{r} 16. \quad \$50.00 \\ - 12.37 \\ \hline \end{array}$$

Solve. Use the prices given on page 42.

17. How much cheaper is one tennis racquet than the other?
18. What is the total cost of a pair of tennis shoes, two cans of tennis balls, and a pair of tennis shorts?
19. A can of tennis balls is paid for with a \$10.00 bill. How much change should be given?

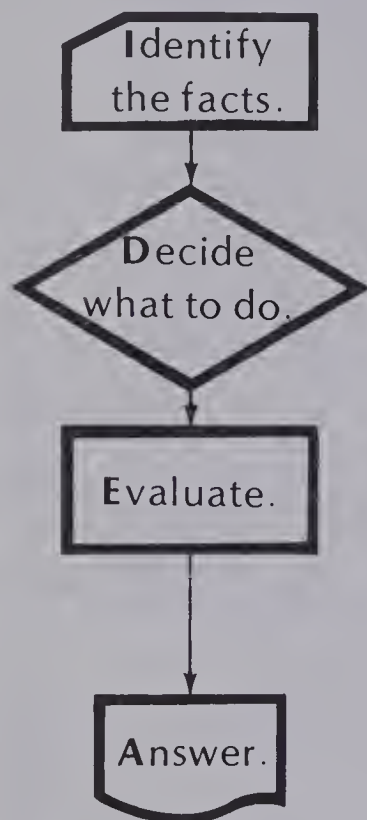
Coin Question

You have 20 coins worth \$1.35. All the coins are nickels and dimes. How many do you have of each kind of coin?



Problem Solving

How much more is an adult ticket than a student ticket?



\$4.75 adult
\$3.50 student

Subtract to find
how much more.

$$\begin{array}{r} \$4.75 \\ - 3.50 \\ \hline \$1.25 \end{array}$$

An adult ticket is \$1.25 more
than a student ticket.

Tickets	
Adult	\$4.75
Student (14-17 yrs.)	\$3.50
Child (under 14 yrs.)	\$2.25



EXERCISES

If this question were asked, would you add or subtract to get the answer?

1. How many altogether?
2. How many less?
3. What is the difference?
4. How many more?
5. What is the total?
6. How much longer?
7. How many in all?
8. How much change?

Write the **Identify** and **Decide** steps.

9. How much do the tickets for two adults and a teenager, age 15, cost?
10. Wade is 11 years old. How much change would he get from \$5.00 for his ticket?

PRACTICE

Solve. Use the four **IDEA** steps.

1. Reed is 14 years old. Mandy is 10 years old. How much more does a ticket for Reed cost than one for Mandy?
2. How much would tickets for two adults cost?
3. What is the total cost of tickets for two 15-year-olds and one 8-year-old?
4. How much less is a child's ticket than a student's ticket?
5. Tickets for a matinee are \$1.50 for a child and \$2.00 for a senior citizen. Rachel and Danny went with their grandmother. How much did the tickets cost?



REVIEW

A5

Subtract.

1. $46 - 28$

2. $34 - 16$

3. $90 - 29$

4. $64 - 49$

A6

5.
$$\begin{array}{r} 321 \\ - 119 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 572 \\ - 408 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 206 \\ - 48 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 570 \\ - 187 \\ \hline \end{array}$$

A7

9.
$$\begin{array}{r} 2175 \\ - 1632 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 5752 \\ - 2891 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4090 \\ - 2134 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 6751 \\ - 4752 \\ \hline \end{array}$$

A8

Add or subtract.

13.
$$\begin{array}{r} 5.1 \\ + 2.8 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 4.6 \\ + 0.7 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 15.2 \\ - 3.9 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 28.4 \\ - 9.6 \\ \hline \end{array}$$

A9

17.
$$\begin{array}{r} \$4.62 \\ + 2.76 \\ \hline \end{array}$$

18.
$$\begin{array}{r} \$75.63 \\ + 9.47 \\ \hline \end{array}$$

19.
$$\begin{array}{r} \$59.50 \\ - 26.55 \\ \hline \end{array}$$

20.
$$\begin{array}{r} \$36.00 \\ - 17.95 \\ \hline \end{array}$$

TEST

UNIT 2

Add.

$$\begin{array}{r} 1. \quad 27 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 49 \\ + 38 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 457 \\ + 152 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 308 \\ + 589 \\ \hline \end{array}$$

$$5. \quad 8 + 4 + 7$$

$$6. \quad 27 + 16 + 38$$

$$7. \quad 94 + 68 + 27$$

$$8. \quad 27 + 148 + 9$$

$$9. \quad 324 + 81 + 38$$

$$10. \quad 800 + 60 + 9$$

$$\begin{array}{r} 11. \quad 5658 \\ + 3213 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 3769 \\ + 875 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 52654 \\ + 4356 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 91247 \\ + 80126 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 15. \quad 57 \\ - 23 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 83 \\ - 48 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 675 \\ - 324 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 643 \\ - 218 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 508 \\ - 287 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 5600 \\ - 2343 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 8030 \\ - 3158 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 7000 \\ - 1767 \\ \hline \end{array}$$

Subtract. Check by adding.

$$23. \quad 817 - 528$$

$$24. \quad 709 - 352$$

$$25. \quad 600 - 178$$

Add or subtract.

$$\begin{array}{r} 26. \quad 3.7 \\ + 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 6.23 \\ + 4.38 \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 43.5 \\ - 4.8 \\ \hline \end{array}$$

$$\begin{array}{r} 29. \quad 57.82 \\ - 8.95 \\ \hline \end{array}$$

Solve.

30. Mt. View School spent \$545.70 for sports equipment and \$339.52 for music supplies. How much was spent all together? How much more was spent for sports equipment than for music?

NUMERATION

Write in standard form.

1. $6000 + 400 + 70 + 6$
2. $200\ 000 + 70\ 000 + 5000$
3. $7\ 000\ 000 + 6000 + 400 + 70$
4. sixteen thousand eighty-five
5. ninety-eight million eleven thousand forty-five

What is the place value of the underlined digit?

- | | | |
|-------------------------------|-------------------------------|---------------------------------|
| 6. $5\underline{7}83$ | 7. $\underline{6}0\ 195$ | 8. $15\underline{2}\ 671$ |
| 9. $34\ \underline{1}25\ 617$ | 10. $\underline{8}\ 642\ 120$ | 11. $\underline{9}05\ 172\ 641$ |
| 12. $5.\underline{7}$ | 13. $1\underline{3}.08$ | 14. $4.6\underline{5}$ |

Copy and complete. Use $<$, $=$, or $>$ for \blacksquare .

- | | | |
|------------------------------|------------------------------|------------------------------------|
| 15. $6715 \blacksquare 6175$ | 16. $4999 \blacksquare 5000$ | 17. $68\ 148 \blacksquare 68\ 248$ |
| 18. $4.2 \blacksquare 4.02$ | 19. $31.5 \blacksquare 31.6$ | 20. $0.08 \blacksquare 0.8$ |

Write the decimal.

- | | | | | |
|--------------------|---------------------|----------------------|---------------------|----------------------|
| 21. $\frac{6}{10}$ | 22. $\frac{12}{10}$ | 23. $\frac{57}{100}$ | 24. $\frac{9}{100}$ | 25. $\frac{46}{100}$ |
|--------------------|---------------------|----------------------|---------------------|----------------------|

Round to the nearest hundred.

- | | | | | |
|---------|---------|----------|----------|------------|
| 26. 871 | 27. 652 | 28. 8862 | 29. 3065 | 30. 51 123 |
|---------|---------|----------|----------|------------|

Round to the nearest whole number.

- | | | | | |
|---------|----------|---------|----------|----------|
| 31. 5.3 | 32. 18.9 | 33. 0.5 | 34. 4.63 | 35. 0.75 |
|---------|----------|---------|----------|----------|

Write the next three numerals.

- | |
|--|
| 36. 7120, 7150, 7180, \blacksquare , \blacksquare , \blacksquare |
| 37. 6.2, 6.4, 6.6, \blacksquare , \blacksquare , \blacksquare |
| 38. 100, 85, 70, \blacksquare , \blacksquare , \blacksquare |

UNIT 3

MULTIPLICATION



Get Ready

Complete the tables. Follow the race course as you answer.

START

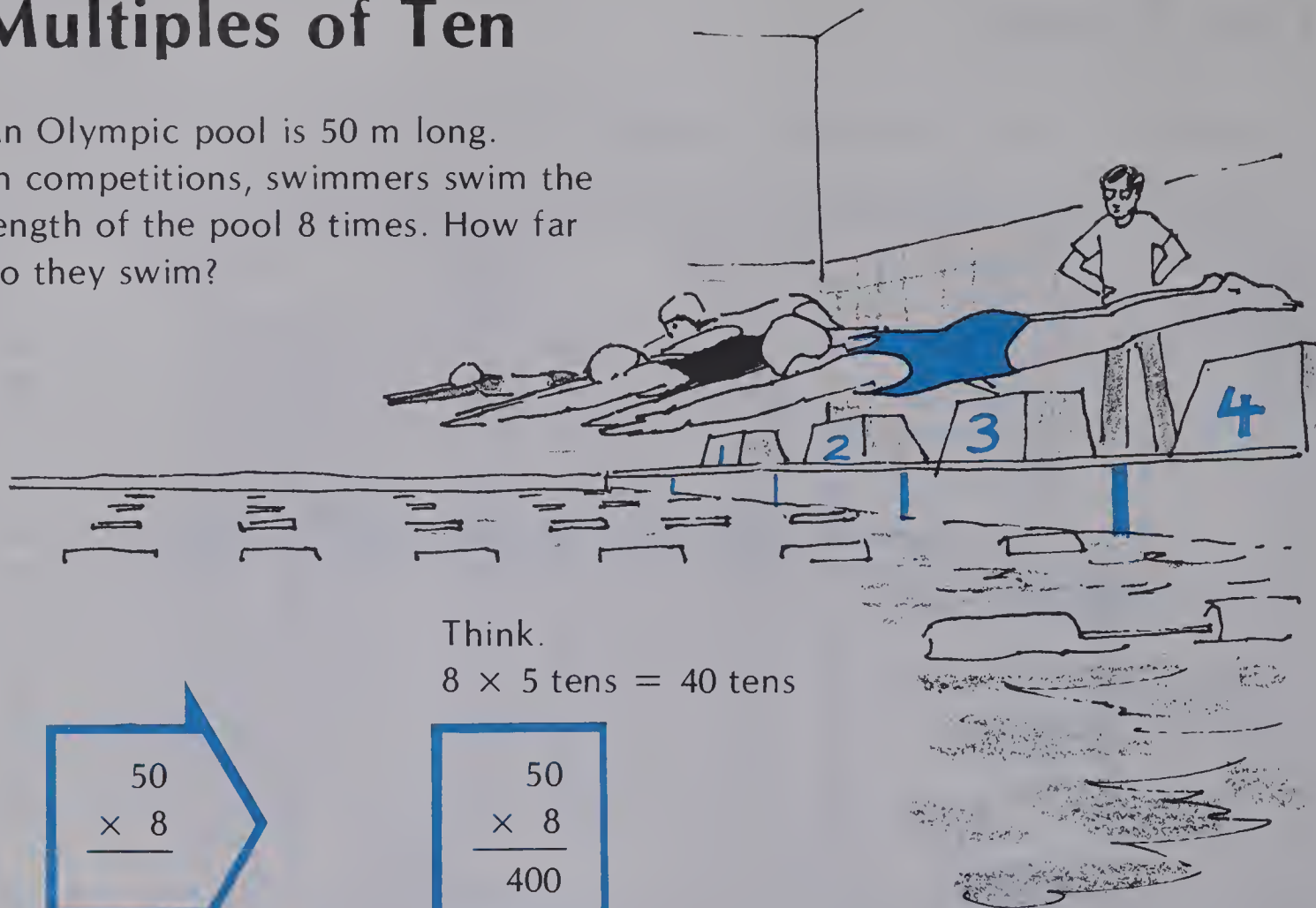
$0 \times 1 = 0$	$10 \times 2 = \blacksquare$	$0 \times 3 = \blacksquare$	$10 \times 4 = \blacksquare$	$0 \times 5 = \blacksquare$
$1 \times 1 = 1$	$9 \times 2 = \blacksquare$	$1 \times 3 = \blacksquare$	$9 \times 4 = \blacksquare$	$1 \times 5 = \blacksquare$
$2 \times 1 = 2$	$8 \times 2 = \blacksquare$	$2 \times 3 = \blacksquare$	$8 \times 4 = \blacksquare$	$2 \times 5 = \blacksquare$
$3 \times 1 = 3$	$7 \times 2 = \blacksquare$	$3 \times 3 = \blacksquare$	$7 \times 4 = \blacksquare$	$3 \times 5 = \blacksquare$
$4 \times 1 = 4$	$6 \times 2 = \blacksquare$	$4 \times 3 = \blacksquare$	$6 \times 4 = \blacksquare$	$4 \times 5 = \blacksquare$
$5 \times 1 = \blacksquare$	$5 \times 2 = \blacksquare$	$5 \times 3 = \blacksquare$	$5 \times 4 = \blacksquare$	$5 \times 5 = \blacksquare$
$5 \times 1 = \blacksquare$	$4 \times 2 = \blacksquare$	$6 \times 3 = \blacksquare$	$4 \times 4 = \blacksquare$	$6 \times 5 = \blacksquare$
$7 \times 1 = \blacksquare$	$3 \times 2 = \blacksquare$	$7 \times 3 = \blacksquare$	$3 \times 4 = \blacksquare$	$7 \times 5 = \blacksquare$
$8 \times 1 = \blacksquare$	$2 \times 2 = \blacksquare$	$8 \times 3 = \blacksquare$	$2 \times 4 = \blacksquare$	$8 \times 5 = \blacksquare$
$9 \times 1 = \blacksquare$	$1 \times 2 = \blacksquare$	$9 \times 3 = \blacksquare$	$1 \times 4 = \blacksquare$	$9 \times 5 = \blacksquare$
$10 \times 1 = \blacksquare$	$0 \times 2 = \blacksquare$	$10 \times 3 = \blacksquare$	$0 \times 4 = \blacksquare$	$10 \times 5 = \blacksquare$

$0 \times 10 = \blacksquare$	$10 \times 9 = \blacksquare$	$0 \times 8 = \blacksquare$	$10 \times 7 = \blacksquare$	$0 \times 6 = \blacksquare$
$1 \times 10 = \blacksquare$	$9 \times 9 = \blacksquare$	$1 \times 8 = \blacksquare$	$9 \times 7 = \blacksquare$	$1 \times 6 = \blacksquare$
$2 \times 10 = \blacksquare$	$8 \times 9 = \blacksquare$	$2 \times 8 = \blacksquare$	$8 \times 7 = \blacksquare$	$2 \times 6 = \blacksquare$
$3 \times 10 = \blacksquare$	$7 \times 9 = \blacksquare$	$3 \times 8 = \blacksquare$	$7 \times 7 = \blacksquare$	$3 \times 6 = \blacksquare$
$4 \times 10 = \blacksquare$	$6 \times 9 = \blacksquare$	$4 \times 8 = \blacksquare$	$6 \times 7 = \blacksquare$	$4 \times 6 = \blacksquare$
$5 \times 10 = \blacksquare$	$5 \times 9 = \blacksquare$	$5 \times 8 = \blacksquare$	$5 \times 7 = \blacksquare$	$5 \times 6 = \blacksquare$
$6 \times 10 = \blacksquare$	$4 \times 9 = \blacksquare$	$6 \times 8 = \blacksquare$	$4 \times 7 = \blacksquare$	$6 \times 6 = \blacksquare$
$7 \times 10 = \blacksquare$	$3 \times 9 = \blacksquare$	$7 \times 8 = \blacksquare$	$3 \times 7 = \blacksquare$	$7 \times 6 = \blacksquare$
$8 \times 10 = \blacksquare$	$2 \times 9 = \blacksquare$	$8 \times 8 = \blacksquare$	$2 \times 7 = \blacksquare$	$8 \times 6 = \blacksquare$
$9 \times 10 = \blacksquare$	$1 \times 9 = \blacksquare$	$9 \times 8 = \blacksquare$	$1 \times 7 = \blacksquare$	$9 \times 6 = \blacksquare$
$10 \times 10 = \blacksquare$	$0 \times 9 = \blacksquare$	$10 \times 8 = \blacksquare$	$0 \times 7 = \blacksquare$	$10 \times 6 = \blacksquare$

FINISH

Multiples of Ten

An Olympic pool is 50 m long.
In competitions, swimmers swim the
length of the pool 8 times. How far
do they swim?



Think.

$$8 \times 5 \text{ tens} = 40 \text{ tens}$$

$$\begin{array}{r} 50 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 50 \\ \times 8 \\ \hline 400 \end{array}$$

They swim 400 m.

EXERCISES

Multiply.

$$\begin{array}{r} 1. \quad 2 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 20 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 30 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 40 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 50 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 6 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 60 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 70 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 80 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 90 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 7 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 70 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 50 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 90 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 60 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 50 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 60 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 70 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 30 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 80 \\ \times 6 \\ \hline \end{array}$$

PRACTICE

Find the product.

1. $\begin{array}{r} 10 \\ \times 2 \\ \hline \end{array}$

2. $\begin{array}{r} 20 \\ \times 3 \\ \hline \end{array}$

3. $\begin{array}{r} 20 \\ \times 4 \\ \hline \end{array}$

4. $\begin{array}{r} 30 \\ \times 3 \\ \hline \end{array}$

5. $\begin{array}{r} 40 \\ \times 2 \\ \hline \end{array}$

6. $\begin{array}{r} 20 \\ \times 5 \\ \hline \end{array}$

7. $\begin{array}{r} 40 \\ \times 4 \\ \hline \end{array}$

8. $\begin{array}{r} 30 \\ \times 7 \\ \hline \end{array}$

9. $\begin{array}{r} 50 \\ \times 4 \\ \hline \end{array}$

10. $\begin{array}{r} 70 \\ \times 3 \\ \hline \end{array}$

11. $\begin{array}{r} 40 \\ \times 6 \\ \hline \end{array}$

12. $\begin{array}{r} 70 \\ \times 4 \\ \hline \end{array}$

13. $\begin{array}{r} 80 \\ \times 3 \\ \hline \end{array}$

14. $\begin{array}{r} 50 \\ \times 5 \\ \hline \end{array}$

15. $\begin{array}{r} 60 \\ \times 6 \\ \hline \end{array}$

16. $\begin{array}{r} 60 \\ \times 9 \\ \hline \end{array}$

17. $\begin{array}{r} 80 \\ \times 7 \\ \hline \end{array}$

18. $\begin{array}{r} 90 \\ \times 8 \\ \hline \end{array}$

19. $\begin{array}{r} 80 \\ \times 6 \\ \hline \end{array}$

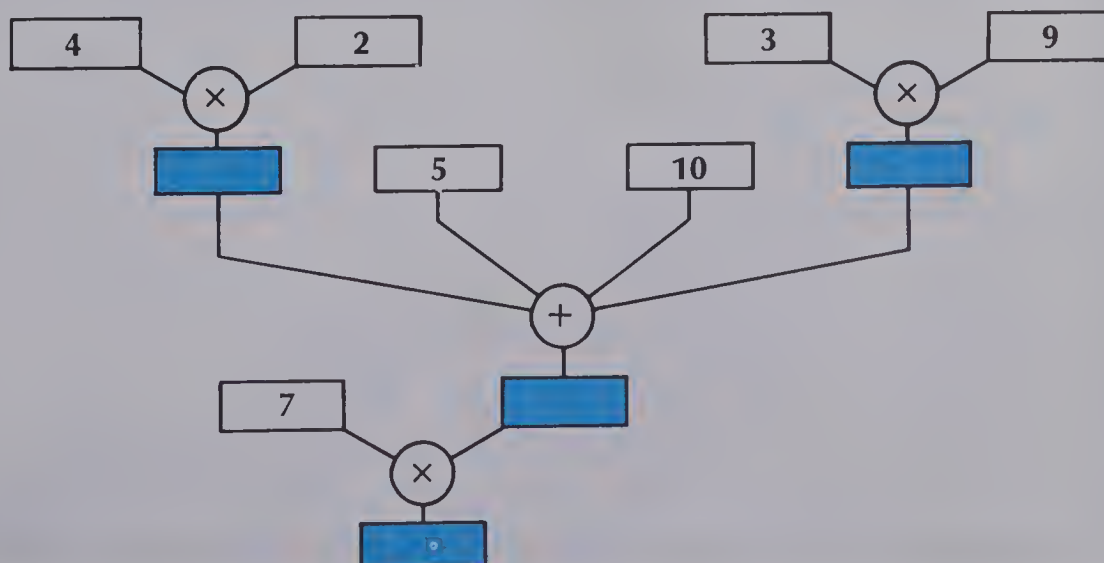
20. $\begin{array}{r} 90 \\ \times 9 \\ \hline \end{array}$

Solve.

21. Dave's little brother swam the 20 m width of the pool 3 times. How far did he swim?
22. Eight schools took part in a track meet. Each school sent 30 athletes. How many students took part?
23. How many quarters should you receive in exchange for twenty dollars?

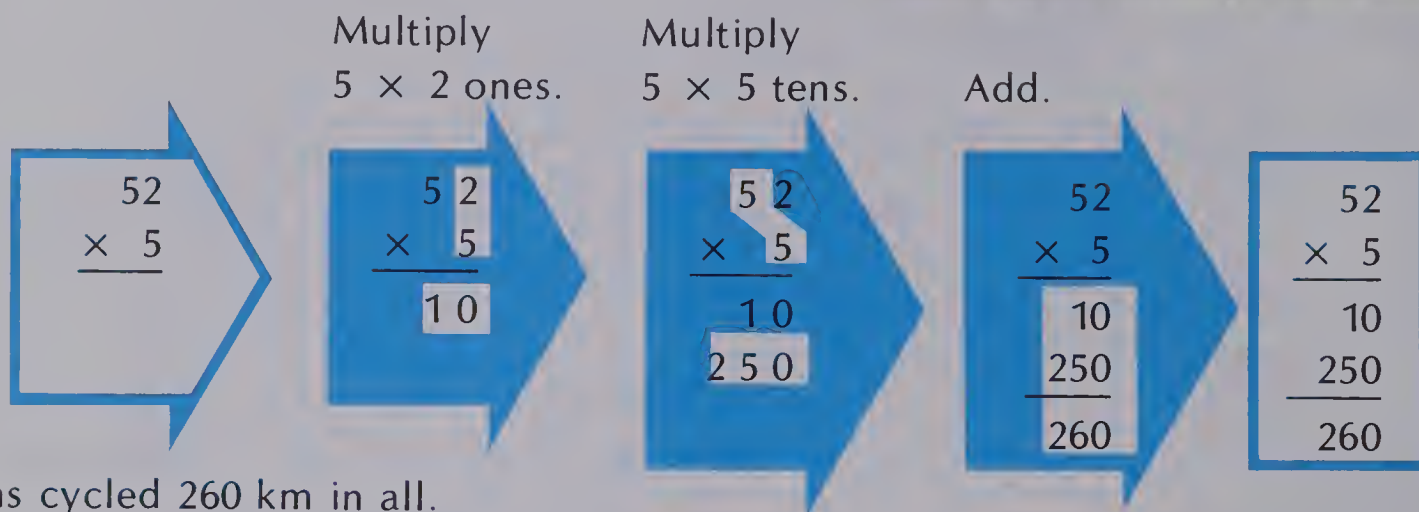
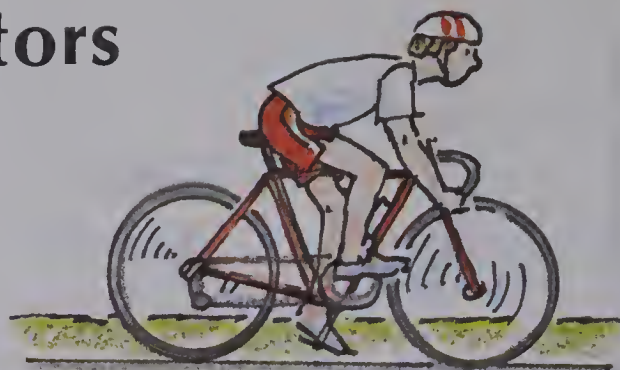
Hopscotch

Find the last number.



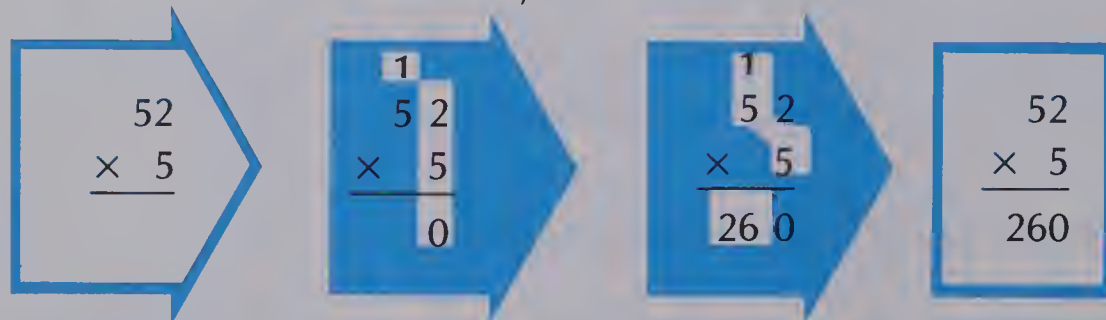
One- and Two-Digit Factors

Hans wanted to enter a 52 km cycling race. He practised cycling this distance 5 times before the race. How far did he cycle in all of his practice races?



Hans cycled 260 km in all.

You can do this a short way.



EXERCISES

Multiply.

- | | | | | |
|--|---|---|---|---|
| 1. $\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$ | 2. $\begin{array}{r} 20 \\ \times 3 \\ \hline \end{array}$ | 3. $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$ | 4. $\begin{array}{r} 53 \\ \times 3 \\ \hline \end{array}$ | 5. $\begin{array}{r} 53 \\ \times 2 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$ | 7. $\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$ | 8. $\begin{array}{r} 36 \\ \times 2 \\ \hline \end{array}$ | 9. $\begin{array}{r} 56 \\ \times 2 \\ \hline \end{array}$ | 10. $\begin{array}{r} 56 \\ \times 3 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$ | 12. $\begin{array}{r} 40 \\ \times 7 \\ \hline \end{array}$ | 13. $\begin{array}{r} 45 \\ \times 7 \\ \hline \end{array}$ | 14. $\begin{array}{r} 65 \\ \times 7 \\ \hline \end{array}$ | 15. $\begin{array}{r} 65 \\ \times 8 \\ \hline \end{array}$ |

PRACTICE

Find the product.

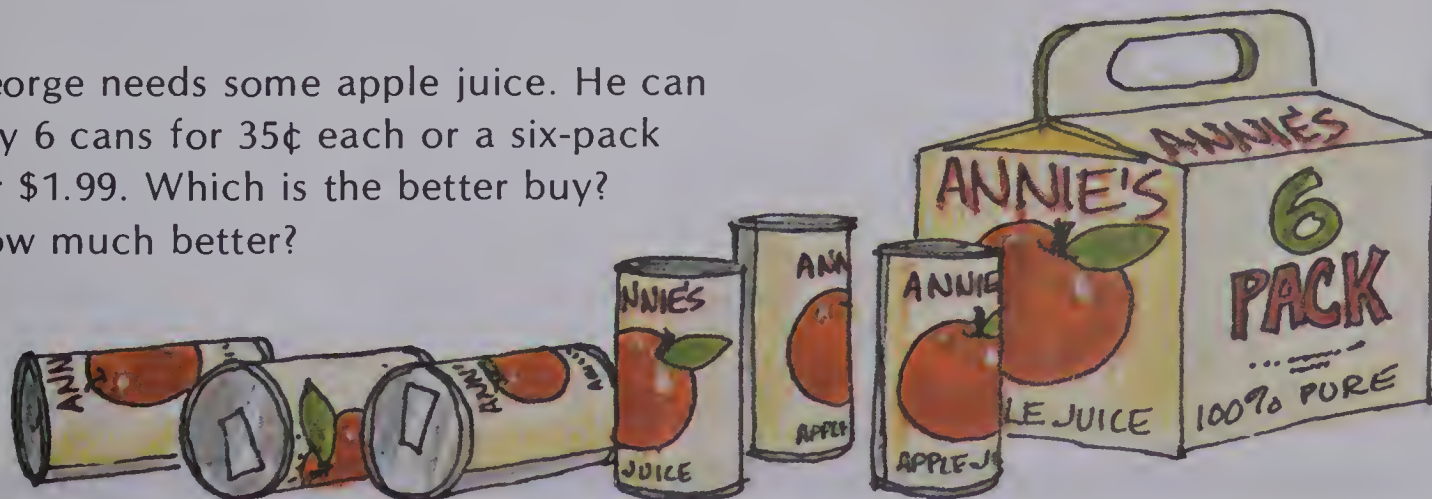
- | | | | | |
|---|---|---|---|---|
| 1. $\begin{array}{r} 13 \\ \times 3 \\ \hline \end{array}$ | 2. $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$ | 3. $\begin{array}{r} 44 \\ \times 2 \\ \hline \end{array}$ | 4. $\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$ | 5. $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 43 \\ \times 3 \\ \hline \end{array}$ | 7. $\begin{array}{r} 54 \\ \times 2 \\ \hline \end{array}$ | 8. $\begin{array}{r} 52 \\ \times 3 \\ \hline \end{array}$ | 9. $\begin{array}{r} 61 \\ \times 4 \\ \hline \end{array}$ | 10. $\begin{array}{r} 72 \\ \times 3 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 25 \\ \times 5 \\ \hline \end{array}$ | 12. $\begin{array}{r} 36 \\ \times 3 \\ \hline \end{array}$ | 13. $\begin{array}{r} 27 \\ \times 4 \\ \hline \end{array}$ | 14. $\begin{array}{r} 18 \\ \times 5 \\ \hline \end{array}$ | 15. $\begin{array}{r} 39 \\ \times 6 \\ \hline \end{array}$ |
| 16. $\begin{array}{r} 44 \\ \times 7 \\ \hline \end{array}$ | 17. $\begin{array}{r} 45 \\ \times 8 \\ \hline \end{array}$ | 18. $\begin{array}{r} 54 \\ \times 5 \\ \hline \end{array}$ | 19. $\begin{array}{r} 36 \\ \times 6 \\ \hline \end{array}$ | 20. $\begin{array}{r} 24 \\ \times 7 \\ \hline \end{array}$ |
| 21. $\begin{array}{r} 67 \\ \times 8 \\ \hline \end{array}$ | 22. $\begin{array}{r} 78 \\ \times 7 \\ \hline \end{array}$ | 23. $\begin{array}{r} 86 \\ \times 9 \\ \hline \end{array}$ | 24. $\begin{array}{r} 79 \\ \times 8 \\ \hline \end{array}$ | 25. $\begin{array}{r} 98 \\ \times 9 \\ \hline \end{array}$ |

Solve.

26. Mr. Savio wants to barbecue 4 steaks. His grill can cook only one steak at a time and each steak takes 13 min. How much time must he allow for cooking?
27. Hillside School has 8 classrooms. Each room has 34 pupils. How many pupils attend in all?

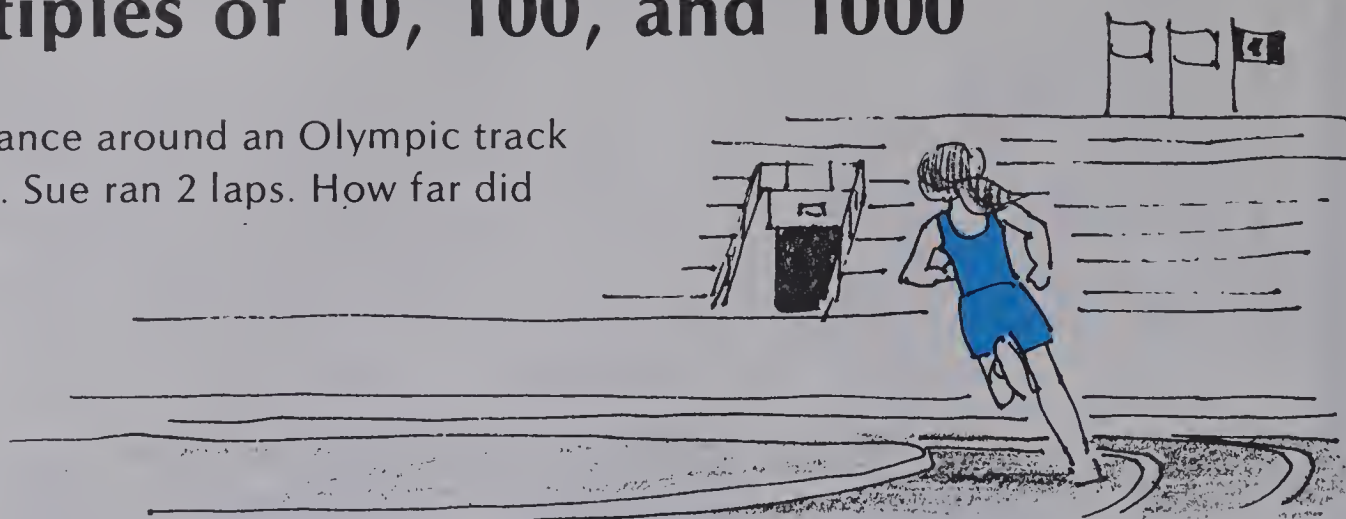
Consumer Problem

George needs some apple juice. He can buy 6 cans for 35¢ each or a six-pack for \$1.99. Which is the better buy? How much better?



Multiples of 10, 100, and 1000

The distance around an Olympic track is 400 m. Sue ran 2 laps. How far did she run?



Multiply
 2×0 ones and
 2×0 tens.

Multiply
 2×4 hundreds.

$$\begin{array}{r} 400 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 400 \\ \times 2 \\ \hline 00 \end{array}$$

$$\begin{array}{r} 400 \\ \times 2 \\ \hline 800 \end{array}$$

$$\begin{array}{r} 400 \\ \times 2 \\ \hline 800 \end{array}$$

Sue ran 800 m.

EXERCISES

Multiply.

1. $\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$

2. $\begin{array}{r} 30 \\ \times 3 \\ \hline \end{array}$

3. $\begin{array}{r} 300 \\ \times 3 \\ \hline \end{array}$

4. $\begin{array}{r} 3000 \\ \times 3 \\ \hline \end{array}$

5. $\begin{array}{r} 2000 \\ \times 3 \\ \hline \end{array}$

6. $\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$

7. $\begin{array}{r} 50 \\ \times 5 \\ \hline \end{array}$

8. $\begin{array}{r} 500 \\ \times 5 \\ \hline \end{array}$

9. $\begin{array}{r} 5000 \\ \times 5 \\ \hline \end{array}$

10. $\begin{array}{r} 4000 \\ \times 5 \\ \hline \end{array}$

11. $\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$

12. $\begin{array}{r} 90 \\ \times 7 \\ \hline \end{array}$

13. $\begin{array}{r} 900 \\ \times 7 \\ \hline \end{array}$

14. $\begin{array}{r} 9000 \\ \times 7 \\ \hline \end{array}$

15. $\begin{array}{r} 8000 \\ \times 7 \\ \hline \end{array}$

16. $\begin{array}{r} 500 \\ \times 4 \\ \hline \end{array}$

17. $\begin{array}{r} 800 \\ \times 6 \\ \hline \end{array}$

18. $\begin{array}{r} 700 \\ \times 5 \\ \hline \end{array}$

19. $\begin{array}{r} 4000 \\ \times 8 \\ \hline \end{array}$

20. $\begin{array}{r} 5000 \\ \times 9 \\ \hline \end{array}$

PRACTICE

Find the product.

$$\begin{array}{r} 1. \quad 70 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 50 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 80 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 60 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 90 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 600 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 800 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 400 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 900 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 700 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 5000 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 3000 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 8000 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 6000 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 9000 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 700 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 80 \\ \times 8 \\ \hline \end{array}$$

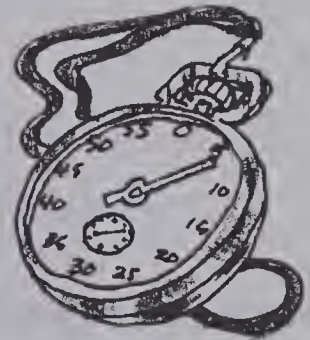
$$\begin{array}{r} 18. \quad 6000 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 900 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 5000 \\ \times 8 \\ \hline \end{array}$$

Solve.

21. How many metres are there in 9 km?
22. Ria is running the 400 m track. How far does she go in 7 complete laps?
23. A school gym is 20 m wide. Nancy runs its width and back 3 times. How far does she run?



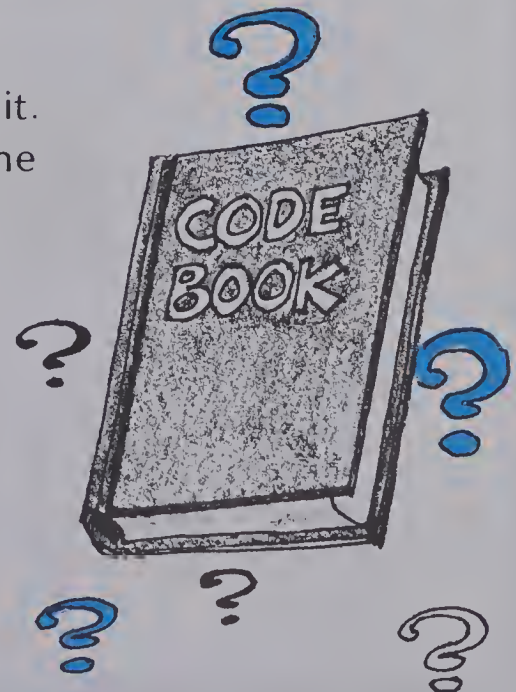
Letter Logic

Each different letter below stands for a different digit. (0 stands for zero.) Discover the code and rewrite the problems with numerals.

$$\begin{array}{r} \text{B0F} \\ \times 4 \\ \hline \text{A004} \end{array}$$

$$\begin{array}{r} \text{A0B} \\ \times 4 \\ \hline \text{CA0} \end{array}$$

$$\begin{array}{r} \text{D0C} \\ \times 4 \\ \hline \text{FADA} \end{array}$$



Three- and Four-Digit Factors

Mario practises skiing on a 1205 m ski run. One day he raced down the run 6 times. How far did he ski in all?



$$\begin{array}{r} 1205 \\ \times \quad 6 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} 1205 \\ \times \quad 6 \\ \hline 30 \\ 00 \\ 1200 \\ 6000 \\ \hline \end{array}$$

Add.

$$\begin{array}{r} 1205 \\ \times \quad 6 \\ \hline 30 \\ 00 \\ 1200 \\ 6000 \\ \hline 7230 \end{array}$$

He skied 7230 m in all.

You can do this a short way.

$$\begin{array}{r} 1 \quad 3 \\ 1205 \\ \times \quad 6 \\ \hline 7230 \end{array}$$

EXERCISES

Multiply.

- | | | | | |
|--|--|--|---|---|
| 1. $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$ | 2. $\begin{array}{r} 30 \\ \times 2 \\ \hline \end{array}$ | 3. $\begin{array}{r} 200 \\ \times 2 \\ \hline \end{array}$ | 4. $\begin{array}{r} 234 \\ \times 2 \\ \hline \end{array}$ | 5. $\begin{array}{r} 5234 \\ \times 2 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$ | 7. $\begin{array}{r} 10 \\ \times 4 \\ \hline \end{array}$ | 8. $\begin{array}{r} 300 \\ \times 4 \\ \hline \end{array}$ | 9. $\begin{array}{r} 315 \\ \times 4 \\ \hline \end{array}$ | 10. $\begin{array}{r} 2315 \\ \times 4 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$ | 12. $\begin{array}{r} 40 \\ \times 6 \\ \hline \end{array}$ | 13. $\begin{array}{r} 500 \\ \times 6 \\ \hline \end{array}$ | 14. $\begin{array}{r} 546 \\ \times 6 \\ \hline \end{array}$ | 15. $\begin{array}{r} 3546 \\ \times 6 \\ \hline \end{array}$ |
| 16. $\begin{array}{r} 400 \\ \times 7 \\ \hline \end{array}$ | 17. $\begin{array}{r} 480 \\ \times 7 \\ \hline \end{array}$ | 18. $\begin{array}{r} 408 \\ \times 7 \\ \hline \end{array}$ | 19. $\begin{array}{r} 4800 \\ \times 7 \\ \hline \end{array}$ | 20. $\begin{array}{r} 4008 \\ \times 7 \\ \hline \end{array}$ |

PRACTICE

Find the product.

- | | | | | |
|--|--|--|---|---|
| 1. $\begin{array}{r} 123 \\ \times 2 \\ \hline \end{array}$ | 2. $\begin{array}{r} 233 \\ \times 3 \\ \hline \end{array}$ | 3. $\begin{array}{r} 342 \\ \times 2 \\ \hline \end{array}$ | 4. $\begin{array}{r} 1234 \\ \times 2 \\ \hline \end{array}$ | 5. $\begin{array}{r} 2303 \\ \times 3 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 245 \\ \times 2 \\ \hline \end{array}$ | 7. $\begin{array}{r} 316 \\ \times 5 \\ \hline \end{array}$ | 8. $\begin{array}{r} 204 \\ \times 4 \\ \hline \end{array}$ | 9. $\begin{array}{r} 2306 \\ \times 3 \\ \hline \end{array}$ | 10. $\begin{array}{r} 2215 \\ \times 4 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 435 \\ \times 9 \\ \hline \end{array}$ | 12. $\begin{array}{r} 634 \\ \times 7 \\ \hline \end{array}$ | 13. $\begin{array}{r} 406 \\ \times 6 \\ \hline \end{array}$ | 14. $\begin{array}{r} 3157 \\ \times 5 \\ \hline \end{array}$ | 15. $\begin{array}{r} 3008 \\ \times 6 \\ \hline \end{array}$ |
| 16. $\begin{array}{r} 608 \\ \times 7 \\ \hline \end{array}$ | 17. $\begin{array}{r} 879 \\ \times 8 \\ \hline \end{array}$ | 18. $\begin{array}{r} 977 \\ \times 9 \\ \hline \end{array}$ | 19. $\begin{array}{r} 5679 \\ \times 8 \\ \hline \end{array}$ | 20. $\begin{array}{r} 6007 \\ \times 7 \\ \hline \end{array}$ |

Solve.

21. A monthly magazine had 6183 subscribers. How many magazines did it mail out in 6 months?
22. Ms Cunningham's private jet flies at 945 kilometres per hour. How far does it fly in 8 h?

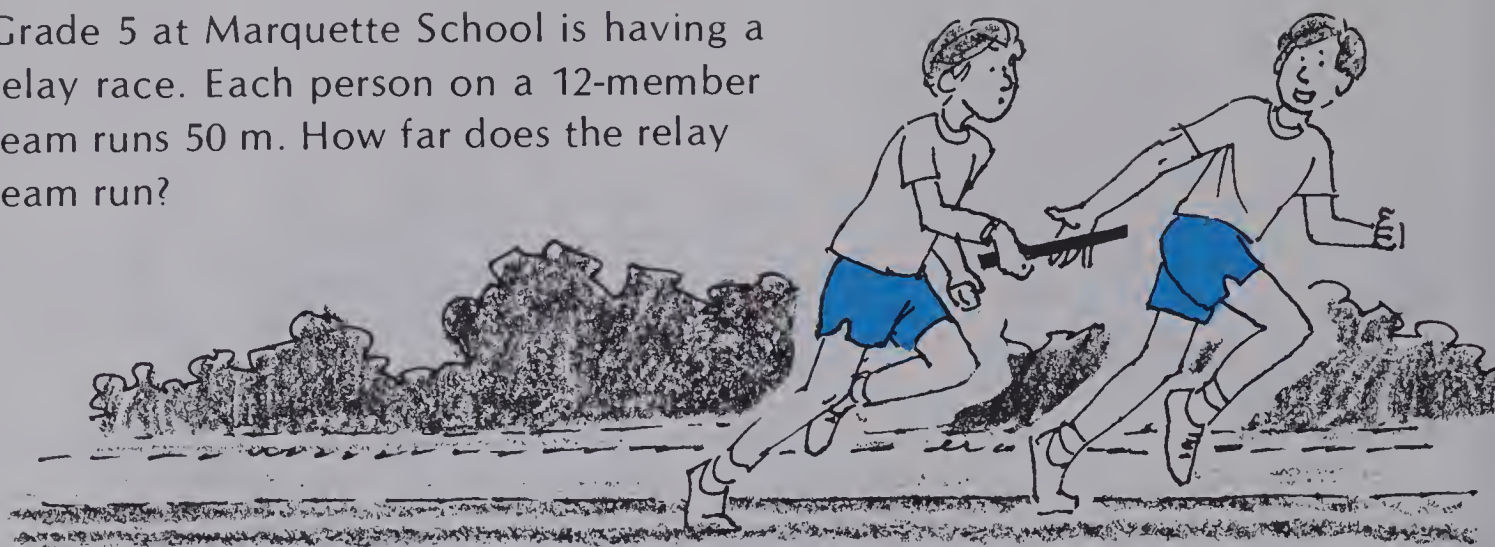
REVIEW

Multiply.

- | | | | | | |
|-----|--|--|---|---|---|
| A10 | 1. $\begin{array}{r} 40 \\ \times 3 \\ \hline \end{array}$ | 2. $\begin{array}{r} 50 \\ \times 6 \\ \hline \end{array}$ | 3. $\begin{array}{r} 70 \\ \times 8 \\ \hline \end{array}$ | 4. $\begin{array}{r} 90 \\ \times 7 \\ \hline \end{array}$ | 5. $\begin{array}{r} 80 \\ \times 9 \\ \hline \end{array}$ |
| A11 | 6. $\begin{array}{r} 35 \\ \times 6 \\ \hline \end{array}$ | 7. $\begin{array}{r} 78 \\ \times 4 \\ \hline \end{array}$ | 8. $\begin{array}{r} 29 \\ \times 3 \\ \hline \end{array}$ | 9. $\begin{array}{r} 65 \\ \times 8 \\ \hline \end{array}$ | 10. $\begin{array}{r} 59 \\ \times 7 \\ \hline \end{array}$ |
| A12 | 11. $\begin{array}{r} 700 \\ \times 6 \\ \hline \end{array}$ | 12. $\begin{array}{r} 500 \\ \times 8 \\ \hline \end{array}$ | 13. $\begin{array}{r} 6000 \\ \times 4 \\ \hline \end{array}$ | 14. $\begin{array}{r} 9000 \\ \times 8 \\ \hline \end{array}$ | |
| A13 | 15. $\begin{array}{r} 575 \\ \times 4 \\ \hline \end{array}$ | 16. $\begin{array}{r} 709 \\ \times 6 \\ \hline \end{array}$ | 17. $\begin{array}{r} 2473 \\ \times 7 \\ \hline \end{array}$ | 18. $\begin{array}{r} 5006 \\ \times 5 \\ \hline \end{array}$ | |

Multiples of Ten

Grade 5 at Marquette School is having a relay race. Each person on a 12-member team runs 50 m. How far does the relay team run?



Multiply
 0×12 .

Multiply
5 tens $\times 12$.

$$\begin{array}{r} 12 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ \times 50 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 12 \\ \times 50 \\ \hline 600 \end{array}$$

$$\begin{array}{r} 12 \\ \times 50 \\ \hline 600 \end{array}$$

Each relay team runs 600 m.

EXERCISES

Multiply.

1. $\begin{array}{r} 22 \\ \times 2 \\ \hline \end{array}$

2. $\begin{array}{r} 22 \\ \times 20 \\ \hline \end{array}$

3. $\begin{array}{r} 24 \\ \times 20 \\ \hline \end{array}$

4. $\begin{array}{r} 34 \\ \times 20 \\ \hline \end{array}$

5. $\begin{array}{r} 43 \\ \times 20 \\ \hline \end{array}$

6. $\begin{array}{r} 53 \\ \times 3 \\ \hline \end{array}$

7. $\begin{array}{r} 53 \\ \times 30 \\ \hline \end{array}$

8. $\begin{array}{r} 52 \\ \times 30 \\ \hline \end{array}$

9. $\begin{array}{r} 62 \\ \times 30 \\ \hline \end{array}$

10. $\begin{array}{r} 71 \\ \times 30 \\ \hline \end{array}$

11. $\begin{array}{r} 44 \\ \times 6 \\ \hline \end{array}$

12. $\begin{array}{r} 44 \\ \times 60 \\ \hline \end{array}$

13. $\begin{array}{r} 48 \\ \times 60 \\ \hline \end{array}$

14. $\begin{array}{r} 78 \\ \times 60 \\ \hline \end{array}$

15. $\begin{array}{r} 99 \\ \times 60 \\ \hline \end{array}$

16. $\begin{array}{r} 31 \\ \times 50 \\ \hline \end{array}$

17. $\begin{array}{r} 75 \\ \times 40 \\ \hline \end{array}$

18. $\begin{array}{r} 67 \\ \times 70 \\ \hline \end{array}$

19. $\begin{array}{r} 34 \\ \times 80 \\ \hline \end{array}$

20. $\begin{array}{r} 85 \\ \times 90 \\ \hline \end{array}$

PRACTICE

Find the product.

1. $\begin{array}{r} 11 \\ \times 50 \\ \hline \end{array}$

2. $\begin{array}{r} 13 \\ \times 30 \\ \hline \end{array}$

3. $\begin{array}{r} 24 \\ \times 20 \\ \hline \end{array}$

4. $\begin{array}{r} 32 \\ \times 30 \\ \hline \end{array}$

5. $\begin{array}{r} 43 \\ \times 10 \\ \hline \end{array}$

6. $\begin{array}{r} 34 \\ \times 50 \\ \hline \end{array}$

7. $\begin{array}{r} 43 \\ \times 60 \\ \hline \end{array}$

8. $\begin{array}{r} 55 \\ \times 30 \\ \hline \end{array}$

9. $\begin{array}{r} 64 \\ \times 40 \\ \hline \end{array}$

10. $\begin{array}{r} 76 \\ \times 80 \\ \hline \end{array}$

11. $\begin{array}{r} 68 \\ \times 70 \\ \hline \end{array}$

12. $\begin{array}{r} 77 \\ \times 80 \\ \hline \end{array}$

13. $\begin{array}{r} 87 \\ \times 90 \\ \hline \end{array}$

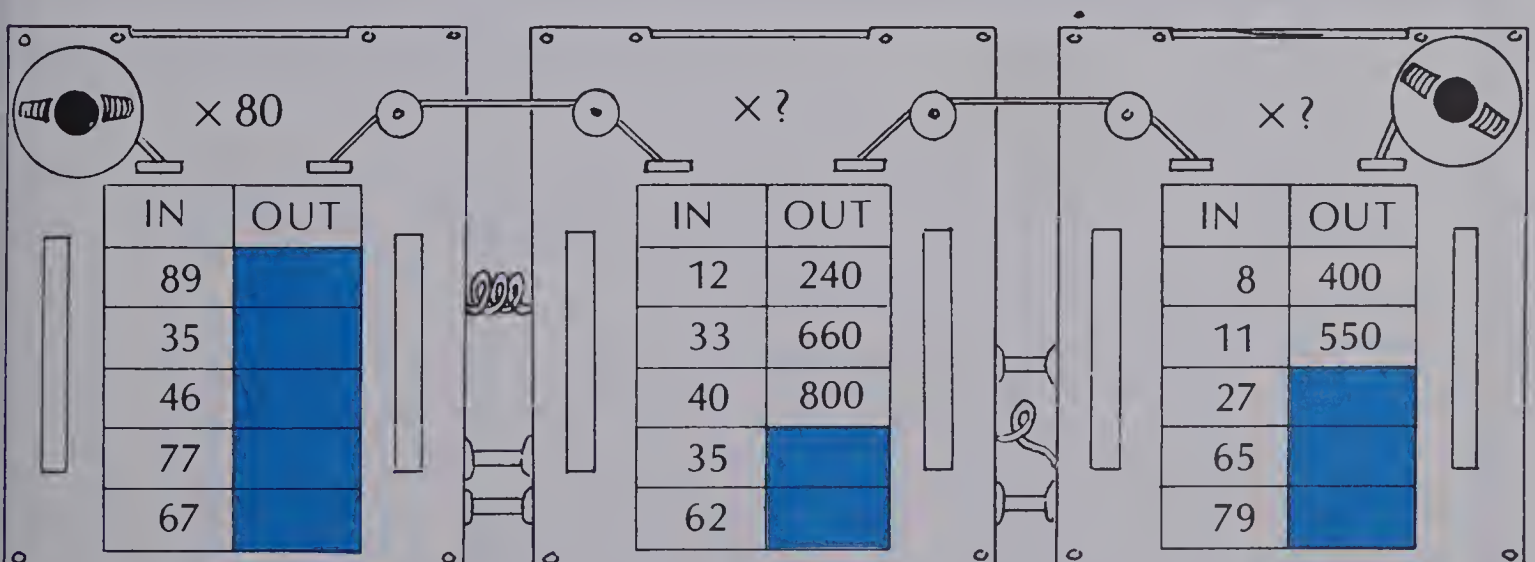
14. $\begin{array}{r} 98 \\ \times 70 \\ \hline \end{array}$

15. $\begin{array}{r} 79 \\ \times 60 \\ \hline \end{array}$

Solve.

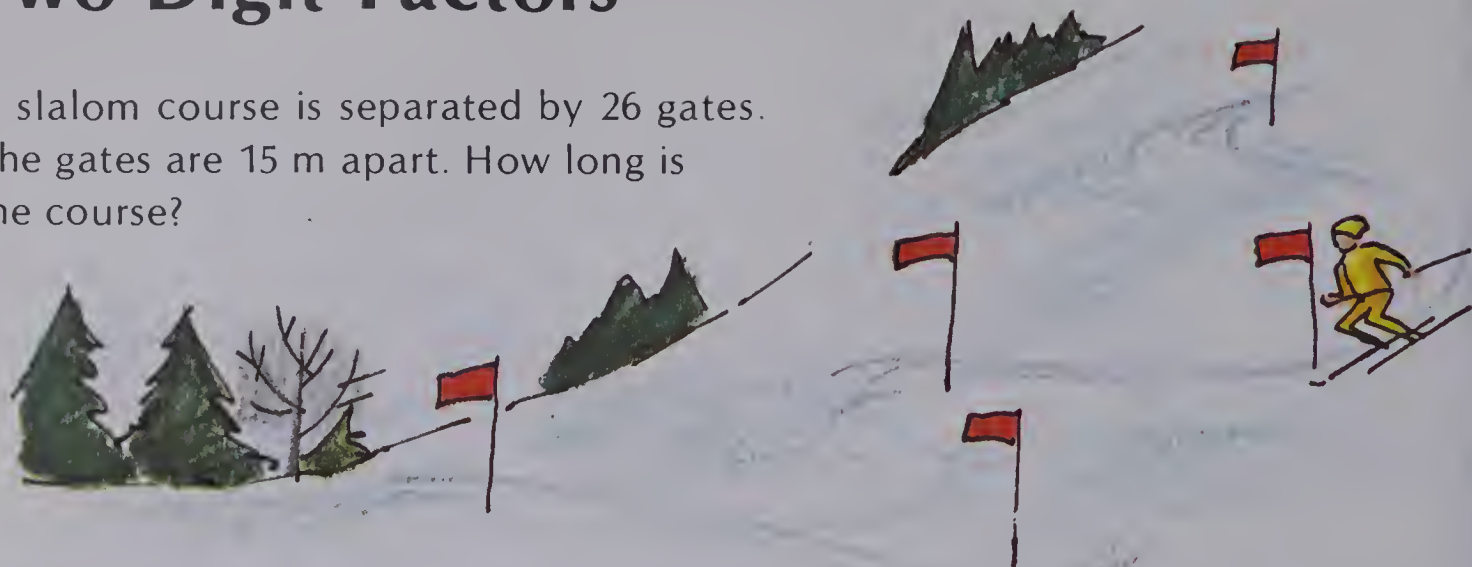
16. Sam practises swimming in his backyard pool. The pool is 13 m long and Sam swims 20 lengths every day. How far does he swim each day?
17. Mary jogs along her street. She goes past 30 houses. If each house lot is 37 m wide, how far does she jog as she goes by?
18. A race car travels at 75 metres per second. How far does it go in one minute?

Computer Tutor



Two-Digit Factors

A slalom course is separated by 26 gates. The gates are 15 m apart. How long is the course?



Multiply
 5×26 .

Multiply
1 ten $\times 26$.

Add.

$$\begin{array}{r} 26 \\ \times 15 \\ \hline \end{array}$$

$$\begin{array}{r} 26 \\ \times 15 \\ \hline 130 \end{array}$$

$$\begin{array}{r} 26 \\ \times 15 \\ \hline 130 \\ 260 \end{array}$$

$$\begin{array}{r} 26 \\ \times 15 \\ \hline 130 \\ 260 \\ \hline 390 \end{array}$$

$$\begin{array}{r} 26 \\ \times 15 \\ \hline 130 \\ 260 \\ \hline 390 \end{array}$$

The slalom course is 390 m long.

EXERCISES

Multiply.

1. $\begin{array}{r} 24 \\ \times 2 \\ \hline \end{array}$

2. $\begin{array}{r} 24 \\ \times 10 \\ \hline \end{array}$

3. $\begin{array}{r} 24 \\ \times 12 \\ \hline \end{array}$

4. $\begin{array}{r} 35 \\ \times 4 \\ \hline \end{array}$

5. $\begin{array}{r} 35 \\ \times 10 \\ \hline \end{array}$

6. $\begin{array}{r} 35 \\ \times 14 \\ \hline \end{array}$

7. $\begin{array}{r} 46 \\ \times 6 \\ \hline \end{array}$

8. $\begin{array}{r} 46 \\ \times 10 \\ \hline \end{array}$

9. $\begin{array}{r} 46 \\ \times 16 \\ \hline \end{array}$

10. $\begin{array}{r} 77 \\ \times 8 \\ \hline \end{array}$

11. $\begin{array}{r} 77 \\ \times 10 \\ \hline \end{array}$

12. $\begin{array}{r} 77 \\ \times 18 \\ \hline \end{array}$

13. $\begin{array}{r} 63 \\ \times 9 \\ \hline \end{array}$

14. $\begin{array}{r} 63 \\ \times 10 \\ \hline \end{array}$

15. $\begin{array}{r} 63 \\ \times 19 \\ \hline \end{array}$

16. $\begin{array}{r} 27 \\ \times 13 \\ \hline \end{array}$

17. $\begin{array}{r} 46 \\ \times 11 \\ \hline \end{array}$

18. $\begin{array}{r} 64 \\ \times 17 \\ \hline \end{array}$

19. $\begin{array}{r} 53 \\ \times 18 \\ \hline \end{array}$

20. $\begin{array}{r} 96 \\ \times 15 \\ \hline \end{array}$

PRACTICE

Find the product.

- | | | | | |
|--|--|--|--|--|
| 1. $\begin{array}{r} 12 \\ \times 11 \\ \hline \end{array}$ | 2. $\begin{array}{r} 23 \\ \times 13 \\ \hline \end{array}$ | 3. $\begin{array}{r} 43 \\ \times 12 \\ \hline \end{array}$ | 4. $\begin{array}{r} 51 \\ \times 15 \\ \hline \end{array}$ | 5. $\begin{array}{r} 82 \\ \times 14 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 45 \\ \times 12 \\ \hline \end{array}$ | 7. $\begin{array}{r} 27 \\ \times 13 \\ \hline \end{array}$ | 8. $\begin{array}{r} 35 \\ \times 14 \\ \hline \end{array}$ | 9. $\begin{array}{r} 38 \\ \times 12 \\ \hline \end{array}$ | 10. $\begin{array}{r} 29 \\ \times 13 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 65 \\ \times 16 \\ \hline \end{array}$ | 12. $\begin{array}{r} 67 \\ \times 13 \\ \hline \end{array}$ | 13. $\begin{array}{r} 54 \\ \times 14 \\ \hline \end{array}$ | 14. $\begin{array}{r} 63 \\ \times 15 \\ \hline \end{array}$ | 15. $\begin{array}{r} 46 \\ \times 16 \\ \hline \end{array}$ |
| 16. $\begin{array}{r} 76 \\ \times 17 \\ \hline \end{array}$ | 17. $\begin{array}{r} 68 \\ \times 16 \\ \hline \end{array}$ | 18. $\begin{array}{r} 84 \\ \times 18 \\ \hline \end{array}$ | 19. $\begin{array}{r} 69 \\ \times 19 \\ \hline \end{array}$ | 20. $\begin{array}{r} 97 \\ \times 18 \\ \hline \end{array}$ |
| 21. $\begin{array}{r} 47 \\ \times 15 \\ \hline \end{array}$ | 22. $\begin{array}{r} 75 \\ \times 16 \\ \hline \end{array}$ | 23. $\begin{array}{r} 98 \\ \times 18 \\ \hline \end{array}$ | 24. $\begin{array}{r} 56 \\ \times 16 \\ \hline \end{array}$ | 25. $\begin{array}{r} 19 \\ \times 19 \\ \hline \end{array}$ |

Solve.

26. A snack bar bought 12 cases of ginger ale. If each case had 24 cans, how many cans did they get?
27. Mr. Fox needed to be back at work on Tuesday. He drove 88 kilometres per hour for 12 hours on Monday to get home. How far did he drive?

USING THE CALCULATOR

Use a calculator.

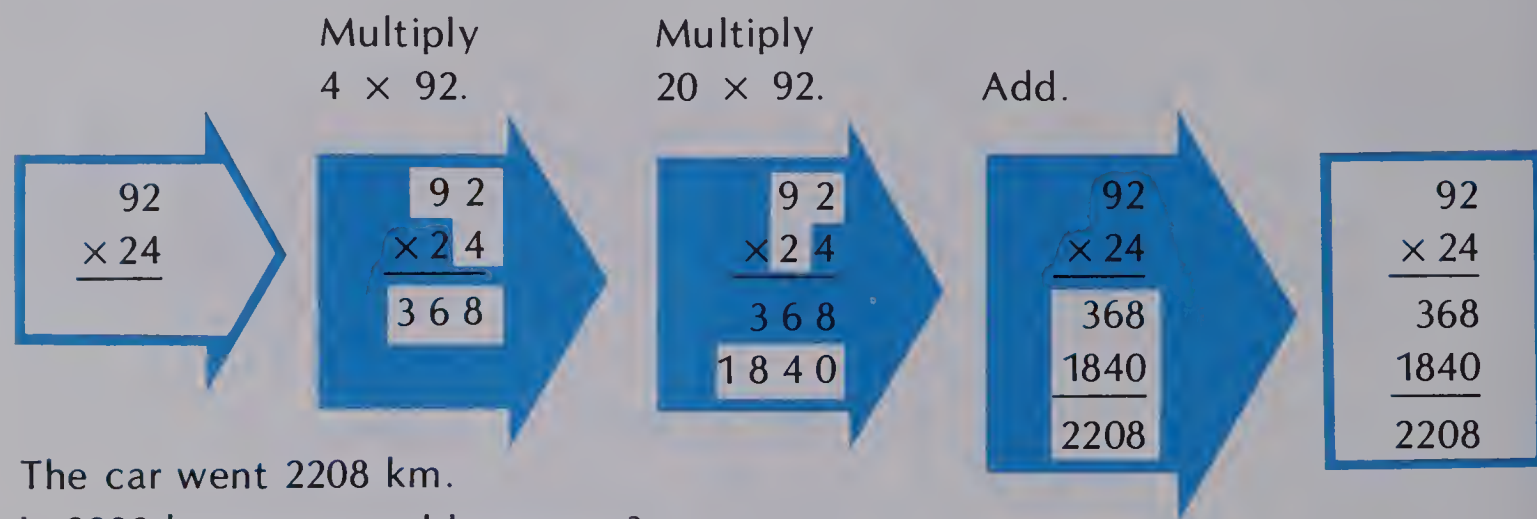
Do the parts inside the parentheses first.

- | | |
|--------------------------|--------------------------------------|
| a. $16 \times (35 + 22)$ | b. $(16 \times 35) + (16 \times 22)$ |
| c. $19 \times (72 + 13)$ | d. $(19 \times 72) + (19 \times 13)$ |
| e. $13 \times (50 + 44)$ | f. $(13 \times 50) + (13 \times 44)$ |
| g. $18 \times (66 + 11)$ | h. $(18 \times 66) + (18 \times 11)$ |

What do you notice about each pair?

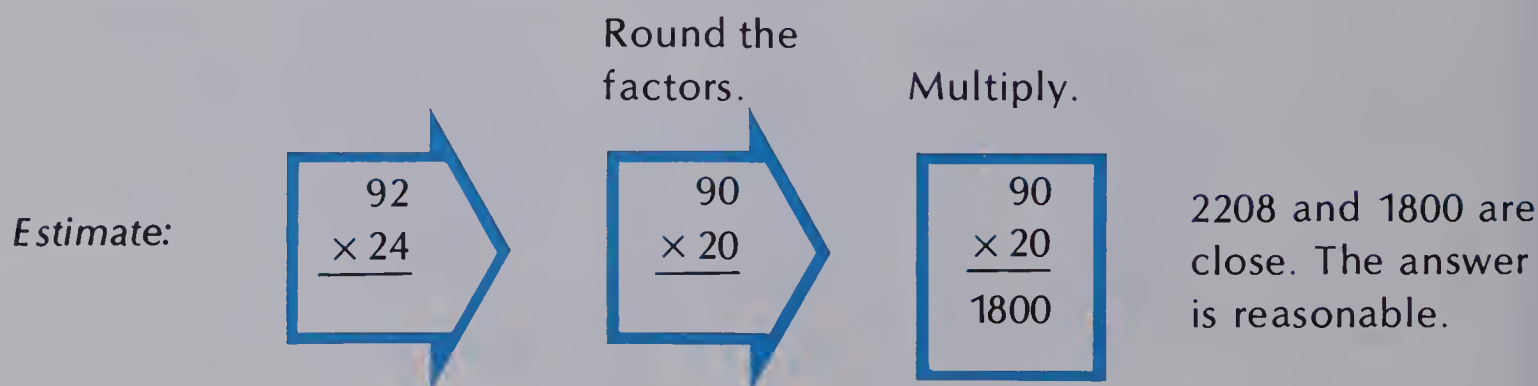
Two-Digit Factors

A car was entered in the 24 h Le Mans endurance road race. It averaged 92 kilometres per hour in the race. How far did it go?



The car went 2208 km.

Is 2208 km a reasonable answer?



EXERCISES

Multiply.

1. $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$

2. $\begin{array}{r} 32 \\ \times 20 \\ \hline \end{array}$

3. $\begin{array}{r} 32 \\ \times 23 \\ \hline \end{array}$

4. $\begin{array}{r} 26 \\ \times 4 \\ \hline \end{array}$

5. $\begin{array}{r} 26 \\ \times 50 \\ \hline \end{array}$

6. $\begin{array}{r} 26 \\ \times 54 \\ \hline \end{array}$

7. $\begin{array}{r} 64 \\ \times 6 \\ \hline \end{array}$

8. $\begin{array}{r} 64 \\ \times 40 \\ \hline \end{array}$

9. $\begin{array}{r} 64 \\ \times 46 \\ \hline \end{array}$

10. $\begin{array}{r} 38 \\ \times 5 \\ \hline \end{array}$

11. $\begin{array}{r} 38 \\ \times 70 \\ \hline \end{array}$

12. $\begin{array}{r} 38 \\ \times 75 \\ \hline \end{array}$

13. $\begin{array}{r} 78 \\ \times 9 \\ \hline \end{array}$

14. $\begin{array}{r} 78 \\ \times 80 \\ \hline \end{array}$

15. $\begin{array}{r} 78 \\ \times 89 \\ \hline \end{array}$

16. $\begin{array}{r} 25 \\ \times 34 \\ \hline \end{array}$

17. $\begin{array}{r} 46 \\ \times 23 \\ \hline \end{array}$

18. $\begin{array}{r} 51 \\ \times 52 \\ \hline \end{array}$

19. $\begin{array}{r} 74 \\ \times 67 \\ \hline \end{array}$

20. $\begin{array}{r} 96 \\ \times 83 \\ \hline \end{array}$

PRACTICE

Find the product. Show that each product is reasonable.

1. $\begin{array}{r} 24 \\ \times 21 \\ \hline \end{array}$

2. $\begin{array}{r} 23 \\ \times 32 \\ \hline \end{array}$

3. $\begin{array}{r} 34 \\ \times 22 \\ \hline \end{array}$

4. $\begin{array}{r} 52 \\ \times 34 \\ \hline \end{array}$

5. $\begin{array}{r} 63 \\ \times 33 \\ \hline \end{array}$

6. $\begin{array}{r} 35 \\ \times 42 \\ \hline \end{array}$

7. $\begin{array}{r} 56 \\ \times 45 \\ \hline \end{array}$

8. $\begin{array}{r} 67 \\ \times 53 \\ \hline \end{array}$

9. $\begin{array}{r} 55 \\ \times 35 \\ \hline \end{array}$

10. $\begin{array}{r} 68 \\ \times 52 \\ \hline \end{array}$

11. $\begin{array}{r} 45 \\ \times 65 \\ \hline \end{array}$

12. $\begin{array}{r} 56 \\ \times 74 \\ \hline \end{array}$

13. $\begin{array}{r} 63 \\ \times 59 \\ \hline \end{array}$

14. $\begin{array}{r} 37 \\ \times 77 \\ \hline \end{array}$

15. $\begin{array}{r} 54 \\ \times 56 \\ \hline \end{array}$

16. $\begin{array}{r} 67 \\ \times 98 \\ \hline \end{array}$

17. $\begin{array}{r} 84 \\ \times 87 \\ \hline \end{array}$

18. $\begin{array}{r} 78 \\ \times 96 \\ \hline \end{array}$

19. $\begin{array}{r} 93 \\ \times 88 \\ \hline \end{array}$

20. $\begin{array}{r} 86 \\ \times 97 \\ \hline \end{array}$

Estimate the answer. Solve.

21. Bill's Garage buys motor oil in 24-can cases. If he buys 75 cases, how many cans does he get?
22. In one minute, 28 L of water pour out of the bathtub tap. How much water will be wasted in 15 min, if the tub is not plugged?
23. Helene goes to school for 32 h every week. How many hours does she attend school in 36 weeks?

Using Your Head

Multiply the factors in any order. Look for products that are multiples of 10 or 100 first. Then multiply the third factor.

a. $32 \times 2 \times 50$

c. $4 \times 43 \times 25$

e. $15 \times 72 \times 2$

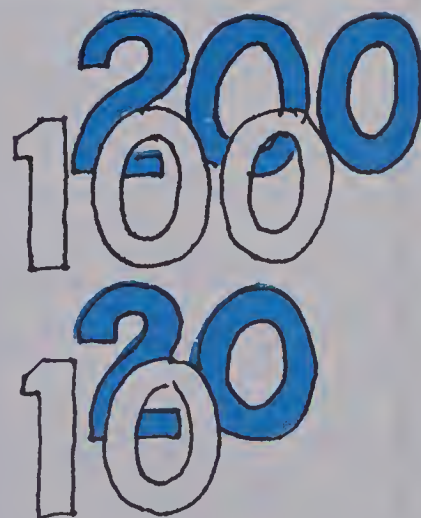
g. $20 \times 5 \times 14$

b. $56 \times 45 \times 2$

d. $8 \times 83 \times 25$

f. $50 \times 12 \times 64$

h. $10 \times 37 \times 20$



Multiplying with Money

What is the cost
of 4 ribbons
at 9¢ each?



$$\begin{array}{r} 9\text{¢} \\ \times 4 \\ \hline 36\text{¢} \end{array} \quad \text{or} \quad \begin{array}{r} \$0.09 \\ \times 4 \\ \hline \$0.36 \end{array}$$

What is the cost
of 3 pairs of
track shoes at
\$21.45 a pair?



$$\begin{array}{r} \$21.45 \\ \times 3 \\ \hline \$64.35 \end{array}$$

EXERCISES

Multiply.

1. $\begin{array}{r} 8\text{¢} \\ \times 6 \\ \hline \end{array}$

2. $\begin{array}{r} \$0.08 \\ \times 6 \\ \hline \end{array}$

3. $\begin{array}{r} 7\text{¢} \\ \times 9 \\ \hline \end{array}$

4. $\begin{array}{r} \$0.07 \\ \times 9 \\ \hline \end{array}$

5. $\begin{array}{r} \$0.70 \\ \times 9 \\ \hline \end{array}$

6. $\begin{array}{r} 15\text{¢} \\ \times 6 \\ \hline \end{array}$

7. $\begin{array}{r} \$0.15 \\ \times 6 \\ \hline \end{array}$

8. $\begin{array}{r} \$1.50 \\ \times 6 \\ \hline \end{array}$

9. $\begin{array}{r} \$10.50 \\ \times 6 \\ \hline \end{array}$

10. $\begin{array}{r} \$15.67 \\ \times 4 \\ \hline \end{array}$

11. $\begin{array}{r} \$5.30 \\ \times 4 \\ \hline \end{array}$

12. $\begin{array}{r} \$50.30 \\ \times 4 \\ \hline \end{array}$

13. $\begin{array}{r} \$9.70 \\ \times 6 \\ \hline \end{array}$

14. $\begin{array}{r} \$64.28 \\ \times 3 \\ \hline \end{array}$

15. $\begin{array}{r} \$27.34 \\ \times 2 \\ \hline \end{array}$

16. $\begin{array}{r} 53\text{¢} \\ \times 24 \\ \hline \end{array}$

17. $\begin{array}{r} \$0.53 \\ \times 24 \\ \hline \end{array}$

18. $\begin{array}{r} 97\text{¢} \\ \times 46 \\ \hline \end{array}$

19. $\begin{array}{r} \$0.97 \\ \times 46 \\ \hline \end{array}$

20. $\begin{array}{r} \$0.70 \\ \times 46 \\ \hline \end{array}$

PRACTICE

Find the product. Check that each product is reasonable.

1.
$$\begin{array}{r} 26¢ \\ \times 9 \\ \hline \end{array}$$

2.
$$\begin{array}{r} \$0.76 \\ \times 8 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \$3.35 \\ \times 8 \\ \hline \end{array}$$

4.
$$\begin{array}{r} \$7.36 \\ \times 2 \\ \hline \end{array}$$

5.
$$\begin{array}{r} \$8.37 \\ \times 5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} \$3.75 \\ \times 9 \\ \hline \end{array}$$

7.
$$\begin{array}{r} \$6.99 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} \$2.79 \\ \times 6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} \$49.95 \\ \times 7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} \$12.35 \\ \times 8 \\ \hline \end{array}$$

11.
$$\begin{array}{r} \$15.35 \\ \times 4 \\ \hline \end{array}$$

12.
$$\begin{array}{r} \$17.95 \\ \times 6 \\ \hline \end{array}$$

13.
$$\begin{array}{r} \$5.37 \\ \times 6 \\ \hline \end{array}$$

14.
$$\begin{array}{r} \$17.77 \\ \times 6 \\ \hline \end{array}$$

15.
$$\begin{array}{r} \$0.50 \\ \times 48 \\ \hline \end{array}$$

Estimate the answer. Solve.

16. What is the cost of 3 pairs of athletic socks at \$1.75 a pair?
17. What is the cost of 6 pairs of running shoes at \$24.75 a pair?
18. Which costs more: 4 stop watches at \$13.75 each, or 80 ribbons at 75¢ each?
19. A customer bought 6 pairs of socks at \$1.75 a pair and 2 pairs of shorts at \$4.95 a pair. What is his change from \$20.00?

Equal Shares

How many ways can \$2.40 be shared equally? Copy and complete this chart. Can you find 18 possibilities?



Number of People	Money for each Person	Total Amount of Money
4	$\times 60¢$	$= \$2.40$
2	$\times \$1.20$	$= \$2.40$
		$= \$2.40$
		$= \$2.40$
		$= \$2.40$
		$= \$2.40$
		$= \$2.40$
		$= \$2.40$
		$= \$2.40$

Multiplying with Tenths

There are 6 legs in a sailboat race.
Each leg is 1.5 km long. How long is the race?



Multiply
 6×15 tenths.

Write the
decimal point.

$$\begin{array}{r} 1.5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 1.5 \\ \times 6 \\ \hline 90 \end{array}$$

90 tenths

$$\begin{array}{r} 1.5 \\ \times 6 \\ \hline 9.0 \end{array}$$

The race is 9.0 km long.

EXERCISES

Multiply.

1. $\begin{array}{r} 4.2 \\ \times 3 \\ \hline \end{array}$

2. $\begin{array}{r} 5.4 \\ \times 2 \\ \hline \end{array}$

3. $\begin{array}{r} 6.7 \\ \times 8 \\ \hline \end{array}$

4. $\begin{array}{r} 29.4 \\ \times 5 \\ \hline \end{array}$

5. $\begin{array}{r} 36.7 \\ \times 6 \\ \hline \end{array}$

6. $\begin{array}{r} 11.2 \\ \times 4 \\ \hline \end{array}$

7. $\begin{array}{r} 90.3 \\ \times 3 \\ \hline \end{array}$

8. $\begin{array}{r} 28.4 \\ \times 7 \\ \hline \end{array}$

9. $\begin{array}{r} 71.2 \\ \times 9 \\ \hline \end{array}$

10. $\begin{array}{r} 37.9 \\ \times 8 \\ \hline \end{array}$

11. $\begin{array}{r} 4.2 \\ \times 33 \\ \hline \end{array}$

12. $\begin{array}{r} 5.1 \\ \times 24 \\ \hline \end{array}$

13. $\begin{array}{r} 4.6 \\ \times 53 \\ \hline \end{array}$

14. $\begin{array}{r} 7.8 \\ \times 65 \\ \hline \end{array}$

15. $\begin{array}{r} 5.9 \\ \times 86 \\ \hline \end{array}$

16. $\begin{array}{r} 70.2 \\ \times 5 \\ \hline \end{array}$

17. $\begin{array}{r} 134.1 \\ \times 6 \\ \hline \end{array}$

18. $\begin{array}{r} 8.7 \\ \times 8 \\ \hline \end{array}$

19. $\begin{array}{r} 520.7 \\ \times 4 \\ \hline \end{array}$

20. $\begin{array}{r} 200.9 \\ \times 5 \\ \hline \end{array}$

PRACTICE

Find the product. Check that each product is reasonable.

$$\begin{array}{r} 1. \quad 1.2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 3.6 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 23.4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 36.4 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 21.5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 3.4 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 5.7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 2.2 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 15.6 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 76.4 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 53.7 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 75.3 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 63.9 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 56.5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 47.4 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 7.5 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 8.6 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 6.7 \\ \times 85 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 7.8 \\ \times 69 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 8.9 \\ \times 94 \\ \hline \end{array}$$

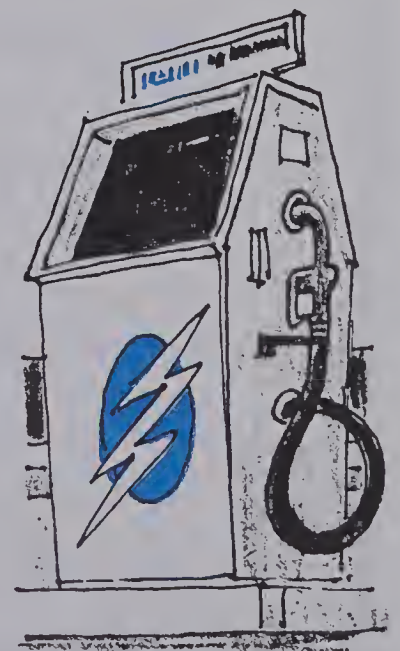
Estimate the answer. Solve.

21. Sean's father needs fuel for the lawn mower. He buys 4 L of gas. One litre costs 44.8¢. How much does he pay for the gas?
22. While hovering near a flower, a humming bird's wings beat about 48 times a second. At that rate, how many beats would its wings make in 3.5 seconds?

Bill Checking

Mr. Wyler checks his gasoline credit card bill each month. One month he thought he should pay \$69.78. The bill stated he owed \$70.78. Check Mr. Wyler's bill:

Date	Amount	Price of one litre	Cost
Sept. 27	65 L	36.6¢	\$23.79
Oct. 13	62 L	37.5¢	23.25
Oct. 24	60 L	37.9¢	23.74
		Total due	\$70.78



Who was right?

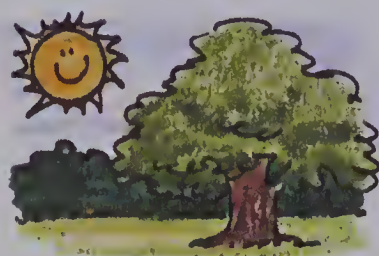
Temperature

Temperature is measured in degrees Celsius.

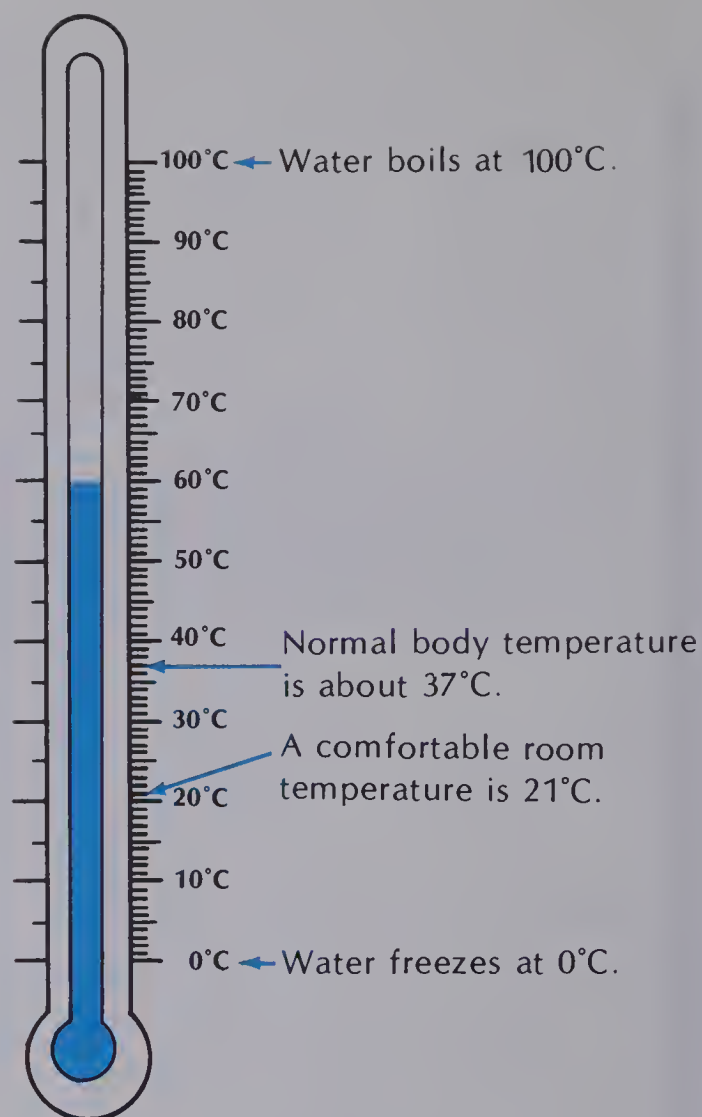


hot soup
about 70°C

baby's bath
about 35°C



summer day
about 27°C



EXERCISES

Write a, b, or c for the most likely measure.

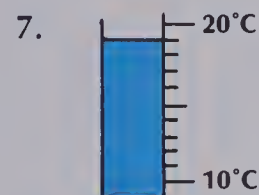
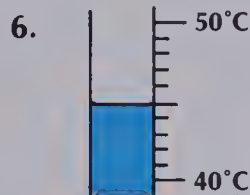
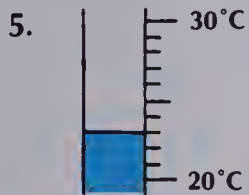
- Comfortable room temperature
(a) 36°C (b) 30°C (c) 21°C
- Good skiing day
(a) 15°C (b) 0°C (c) 10°C
- Good weather for swimming
(a) 18°C (b) 28°C (c) 8°C
- Cup of hot chocolate
(a) 100°C (b) 5°C (c) 65°C
- Comfortable bath water
(a) 15°C (b) 40°C (c) 75°C
- Temperature needed to make ice cubes
(a) 30°C (b) 10°C (c) 0°C

PRACTICE

Copy and complete.

1. Water freezes at $\blacksquare^{\circ}\text{C}$.
2. Water boils at $\blacksquare^{\circ}\text{C}$.
3. Normal body temperature is $\blacksquare^{\circ}\text{C}$.
4. Usual room temperature is $\blacksquare^{\circ}\text{C}$.

Write the temperature.



Choose the most likely temperature.

8. A hot summer day
60°C 32°C 22°C
9. A nice autumn day
13°C 3°C 30°C
10. A person's fever
21°C 37°C 39°C
11. A cup of hot tea
35°C 70°C 20°C

REVIEW

Multiply.

A14	1. $\begin{array}{r} 23 \\ \times 30 \\ \hline \end{array}$	2. $\begin{array}{r} 65 \\ \times 40 \\ \hline \end{array}$	3. $\begin{array}{r} 52 \\ \times 60 \\ \hline \end{array}$	4. $\begin{array}{r} 74 \\ \times 70 \\ \hline \end{array}$
A15	5. $\begin{array}{r} 42 \\ \times 13 \\ \hline \end{array}$	6. $\begin{array}{r} 73 \\ \times 12 \\ \hline \end{array}$	7. $\begin{array}{r} 64 \\ \times 15 \\ \hline \end{array}$	8. $\begin{array}{r} 76 \\ \times 19 \\ \hline \end{array}$
A16	9. $\begin{array}{r} 31 \\ \times 23 \\ \hline \end{array}$	10. $\begin{array}{r} 53 \\ \times 46 \\ \hline \end{array}$	11. $\begin{array}{r} 86 \\ \times 43 \\ \hline \end{array}$	12. $\begin{array}{r} 54 \\ \times 85 \\ \hline \end{array}$
M1	13. $\begin{array}{r} \$0.07 \\ \times 5 \\ \hline \end{array}$	14. $\begin{array}{r} \$3.42 \\ \times 2 \\ \hline \end{array}$	15. $\begin{array}{r} \$15.25 \\ \times 4 \\ \hline \end{array}$	16. $\begin{array}{r} \$6.50 \\ \times 32 \\ \hline \end{array}$
A17	17. $\begin{array}{r} 9.3 \\ \times 4 \\ \hline \end{array}$	18. $\begin{array}{r} 73.5 \\ \times 7 \\ \hline \end{array}$	19. $\begin{array}{r} 3.9 \\ \times 8 \\ \hline \end{array}$	20. $\begin{array}{r} 5.2 \\ \times 16 \\ \hline \end{array}$

TEST

UNIT 3

Multiply.

1.
$$\begin{array}{r} 70 \\ \times 4 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 90 \\ \times 6 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 81 \\ \times 9 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 54 \\ \times 5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 98 \\ \times 7 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 500 \\ \times 2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 409 \\ \times 3 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 9000 \\ \times 9 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 2956 \\ \times 7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 6078 \\ \times 5 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 34 \\ \times 20 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 75 \\ \times 40 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 86 \\ \times 50 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 23 \\ \times 12 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 48 \\ \times 15 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 75 \\ \times 18 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 36 \\ \times 41 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 25 \\ \times 32 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 67 \\ \times 58 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 89 \\ \times 95 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 52¢ \\ \times 7 \\ \hline \end{array}$$

22.
$$\begin{array}{r} \$4.29 \\ \times 5 \\ \hline \end{array}$$

23.
$$\begin{array}{r} \$14.98 \\ \times 6 \\ \hline \end{array}$$

24.
$$\begin{array}{r} \$6.25 \\ \times 5 \\ \hline \end{array}$$

25.
$$\begin{array}{r} \$70.55 \\ \times 4 \\ \hline \end{array}$$

26.
$$\begin{array}{r} 3.4 \\ \times 2 \\ \hline \end{array}$$

27.
$$\begin{array}{r} 8.7 \\ \times 9 \\ \hline \end{array}$$

28.
$$\begin{array}{r} 5.6 \\ \times 4 \\ \hline \end{array}$$

29.
$$\begin{array}{r} 3.7 \\ \times 82 \\ \hline \end{array}$$

30.
$$\begin{array}{r} 5.9 \\ \times 96 \\ \hline \end{array}$$

Solve.

31. What is the temperature when it is 15°C above the freezing point of water?
32. A doublechair ski lift carries 710 people to the top of the mountain every hour. How many people does it carry up in 7 h?
33. What is the cost of 8 tickets at \$9.50 per ticket?
34. A jet can go 845 kilometres per hour. How far can it go in 6 h?

COMPUTATION: +, -

Add.

$$\begin{array}{r} 1. \quad 46 \\ + 53 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 76 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 89 \\ + 78 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 295 \\ + 384 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 417 \\ + 235 \\ \hline \end{array}$$

$$6. \quad 9 + 5 + 4$$

$$7. \quad 64 + 28 + 55$$

$$8. \quad 39 + 75 + 85$$

$$\begin{array}{r} 9. \quad 2417 \\ + 3428 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 9453 \\ + 1476 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 5691 \\ + 673 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 46 \ 195 \\ + 7 \ 249 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 78 \ 417 \\ + 63 \ 986 \\ \hline \end{array}$$

$$14. \quad 672 + 3 + 89$$

$$15. \quad 209 + 86 + 376$$

Subtract.

$$\begin{array}{r} 16. \quad 68 \\ - 25 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 35 \\ - 29 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 72 \\ - 47 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 374 \\ - 122 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 509 \\ - 273 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 625 \\ - 279 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 580 \\ - 499 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 2700 \\ - 929 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 4070 \\ - 2652 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 8000 \\ - 4173 \\ \hline \end{array}$$

Subtract.

$$26. \quad 904 - 475$$

$$27. \quad 357 - 194$$

$$28. \quad 800 - 256$$

Add or subtract.

$$\begin{array}{r} 29. \quad 5.9 \\ + 6.7 \\ \hline \end{array}$$

$$\begin{array}{r} 30. \quad 42.6 \\ + 75.9 \\ \hline \end{array}$$

$$\begin{array}{r} 31. \quad 3.86 \\ + 7.93 \\ \hline \end{array}$$

$$\begin{array}{r} 32. \quad 57.8 \\ - 1.9 \\ \hline \end{array}$$

$$\begin{array}{r} 33. \quad 37.96 \\ - 8.77 \\ \hline \end{array}$$

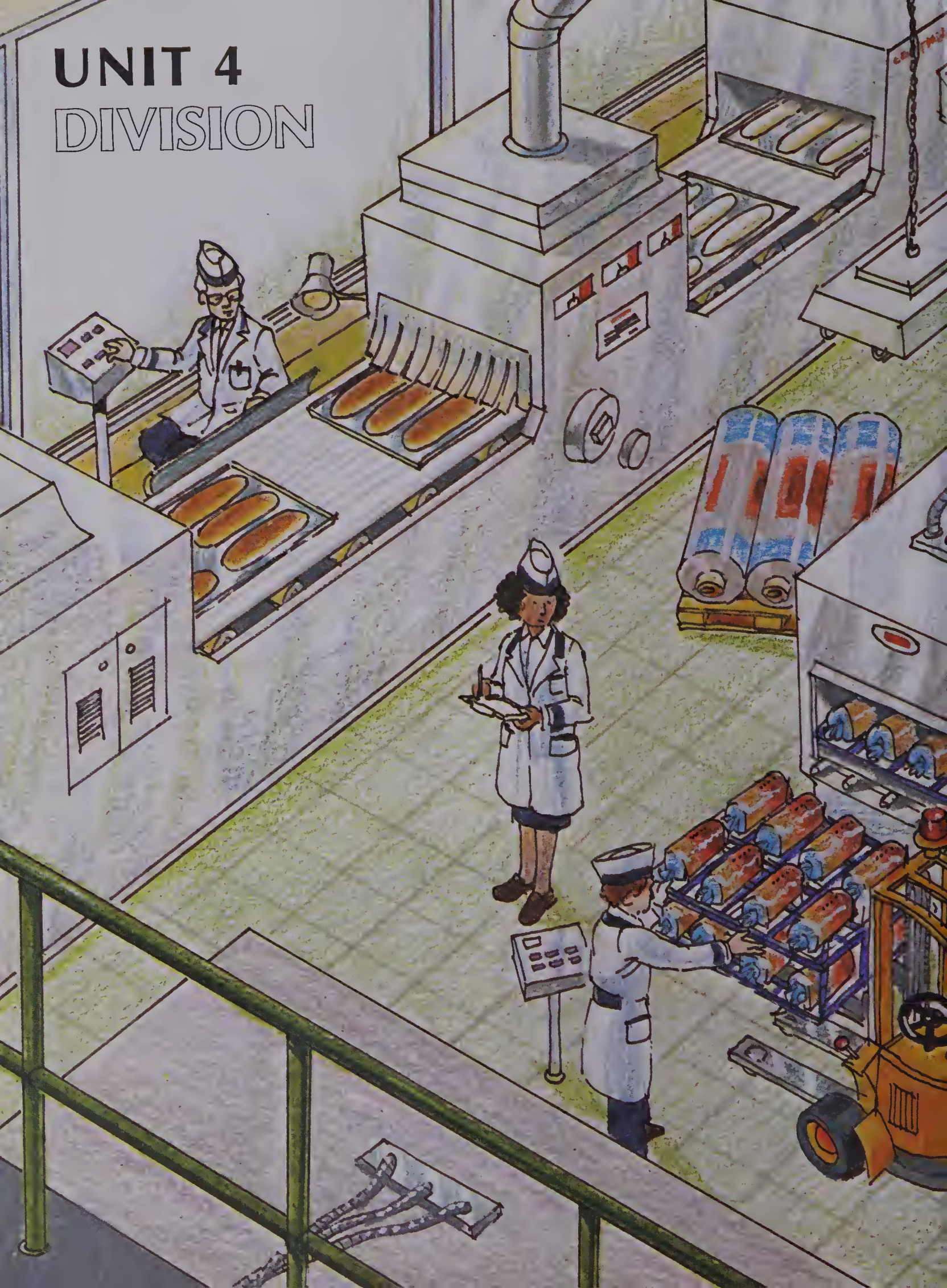
Solve.

34. This month the Vargas family spent \$425.30 on groceries. Last month they spent \$396.98. How much more did they spend this month?

35. There were 32 teachers, 148 students, and 312 parents at a school gymnastics demonstration. How many people were there in all?

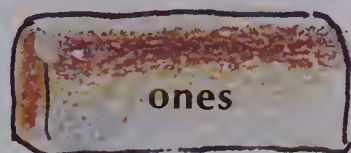
UNIT 4

DIVISION

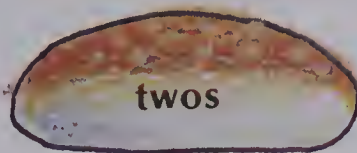


Division Bake-Off

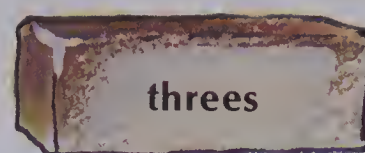
How fast can you complete the division tables?



$10 \div 1$	$5 \div 1$
$9 \div 1$	$4 \div 1$
$8 \div 1$	$3 \div 2$
$7 \div 1$	$2 \div 1$
$6 \div 1$	$1 \div 1$



$18 \div 2$	$20 \div 2$
$14 \div 2$	$4 \div 2$
$6 \div 2$	$8 \div 2$
$16 \div 2$	$10 \div 2$
$12 \div 2$	$2 \div 2$



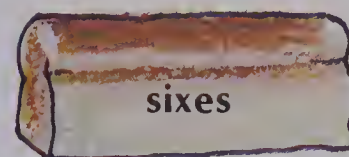
$18 \div 3$	$30 \div 3$
$27 \div 3$	$21 \div 3$
$15 \div 3$	$6 \div 3$
$9 \div 3$	$3 \div 3$
$12 \div 3$	$24 \div 3$



$16 \div 4$	$4 \div 4$
$40 \div 4$	$32 \div 4$
$12 \div 4$	$16 \div 4$
$8 \div 4$	$28 \div 4$
$36 \div 4$	$12 \div 4$



$50 \div 5$	$15 \div 5$
$25 \div 5$	$45 \div 5$
$30 \div 5$	$35 \div 5$
$5 \div 5$	$10 \div 5$
$20 \div 5$	$40 \div 5$



$6 \div 6$	$18 \div 6$
$36 \div 6$	$30 \div 6$
$42 \div 6$	$54 \div 6$
$12 \div 6$	$60 \div 6$
$24 \div 6$	$42 \div 6$



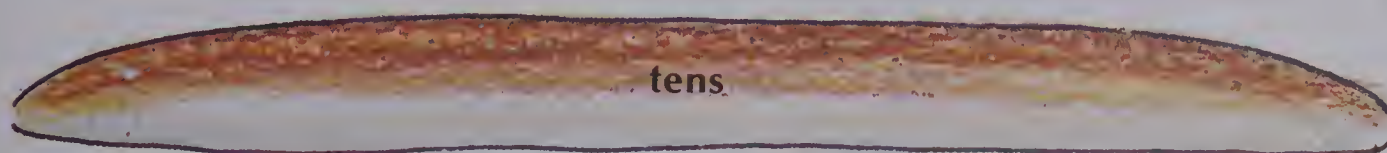
$14 \div 7$	$63 \div 7$
$70 \div 7$	$42 \div 7$
$21 \div 7$	$35 \div 7$
$49 \div 7$	$56 \div 7$
$7 \div 7$	$28 \div 7$



$16 \div 8$	$8 \div 8$
$32 \div 8$	$40 \div 8$
$56 \div 8$	$24 \div 8$
$64 \div 8$	$48 \div 8$
$80 \div 8$	$72 \div 8$



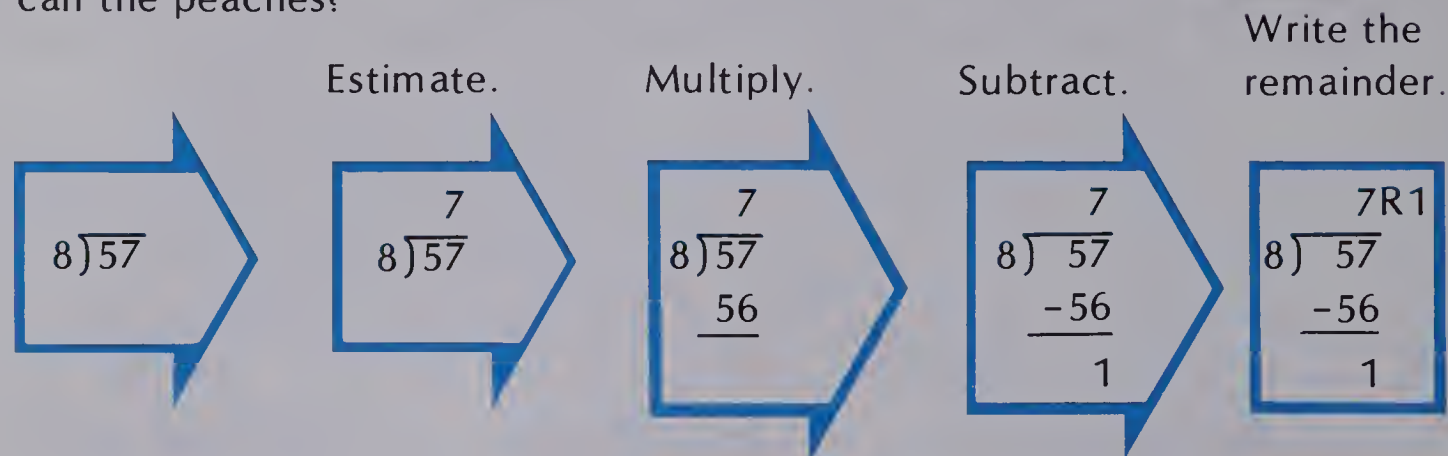
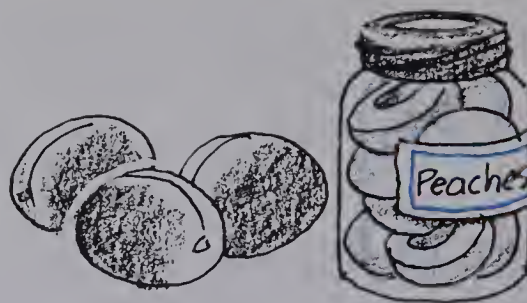
$81 \div 9$	$90 \div 9$
$9 \div 9$	$45 \div 9$
$72 \div 9$	$36 \div 9$
$18 \div 9$	$54 \div 9$
$27 \div 9$	$63 \div 9$



$100 \div 10$	$60 \div 10$	$80 \div 10$	$20 \div 10$	$30 \div 10$
$70 \div 10$	$90 \div 10$	$0 \div 10$	$10 \div 10$	$50 \div 10$

One-Stage Division

Carl is helping his mother can peaches. They have 57 peaches to can. Eight peaches fit in a jar. Will 6 jars be enough to can the peaches?



No, 7 jars are needed.
One peach will be left over.

Check: Multiply the *quotient*
by the *divisor*

$$\begin{array}{r} 7 \\ \times 8 \\ \hline 56 \\ + 1 \\ \hline 57 \end{array}$$

and add the *remainder*
to get the *dividend*

EXERCISES

Copy and complete each division.

- | | | | | |
|---|--|--|---|--|
| 1. $\begin{array}{r} \blacksquare \\ 5 \overline{)40} \\ \underline{-40} \\ \blacksquare \end{array}$ | 2. $\begin{array}{r} \blacksquare R \blacksquare \\ 5 \overline{)42} \\ \underline{-40} \\ \blacksquare \end{array}$ | 3. $\begin{array}{r} \blacksquare R \blacksquare \\ 5 \overline{)44} \\ \underline{-40} \\ \blacksquare \end{array}$ | 4. $\begin{array}{r} \blacksquare \\ 5 \overline{)45} \\ \underline{-45} \\ \blacksquare \end{array}$ | 5. $\begin{array}{r} \blacksquare R \blacksquare \\ 5 \overline{)48} \\ \underline{-45} \\ \blacksquare \end{array}$ |
| 6. $9 \overline{)54}$ | 7. $9 \overline{)55}$ | 8. $9 \overline{)59}$ | 9. $9 \overline{)62}$ | 10. $9 \overline{)63}$ |
| 11. $6 \overline{)27}$ | 12. $6 \overline{)35}$ | 13. $6 \overline{)30}$ | 14. $4 \overline{)21}$ | 15. $7 \overline{)60}$ |

Divide. Check your answers.

- | | | | | |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| 16. $8 \overline{)30}$ | 17. $3 \overline{)14}$ | 18. $8 \overline{)70}$ | 19. $7 \overline{)45}$ | 20. $4 \overline{)39}$ |
| 21. $25 \div 8$ | 22. $17 \div 5$ | 23. $46 \div 6$ | | |

PRACTICE

Find the quotient.

- | | | | | |
|------------------------|------------------------|------------------------|------------------------|------------------------|
| 1. $4 \overline{)19}$ | 2. $2 \overline{)13}$ | 3. $6 \overline{)39}$ | 4. $8 \overline{)60}$ | 5. $7 \overline{)33}$ |
| 6. $9 \overline{)48}$ | 7. $5 \overline{)30}$ | 8. $6 \overline{)47}$ | 9. $7 \overline{)25}$ | 10. $8 \overline{)38}$ |
| 11. $9 \overline{)54}$ | 12. $4 \overline{)35}$ | 13. $7 \overline{)62}$ | 14. $8 \overline{)71}$ | 15. $9 \overline{)88}$ |

Divide. Check your answer.

- | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 16. $19 \div 3$ | 17. $28 \div 5$ | 18. $64 \div 7$ | 19. $53 \div 6$ | 20. $70 \div 9$ |
| 21. $34 \div 7$ | 22. $26 \div 9$ | 23. $38 \div 6$ | 24. $83 \div 9$ | 25. $58 \div 6$ |

Divide each number by 8.

- | | | | | |
|--------|--------|--------|--------|--------|
| 26. 72 | 27. 31 | 28. 21 | 29. 39 | 30. 52 |
|--------|--------|--------|--------|--------|

Solve.

31. Mrs. Sweeney has 17 L of tomato sauce to can.
How many 2 L jars can she fill?
32. Mrs. Sweeney has 71 cucumbers to make into dill pickles. Nine cucumbers fit into one jar. Are 8 jars enough to can the cucumbers?
33. It took Mrs. Sweeney 6 h to prepare 42 jars of canned food. How many jars per hour was that?

Using Your Head

All of the numbers below are evenly divisible by 9.
How can you tell without dividing?

54	117	351	612	81	108	432
----	-----	-----	-----	----	-----	-----

Which numbers below are evenly divisible by 9?

405	209	702	135	614	126	521
-----	-----	-----	-----	-----	-----	-----

One-Stage Division

After catching 214 smelt one evening, Joanna and her father froze them. They put them in 7 plastic bags. About how many fish were in each bag?



$$7 \overline{) 214}$$

Divide
21 tens by 7.

$$\begin{array}{r} 3 \\ 7 \overline{) 214} \\ \underline{-21} \\ 0 \end{array}$$

Remember
the ones.

$$\begin{array}{r} 30 \\ 7 \overline{) 214} \\ \underline{-21} \downarrow \\ 04 \end{array}$$

Write the
remainder.

$$\begin{array}{r} 30R4 \\ 7 \overline{) 214} \\ \underline{-21} \\ 04 \end{array}$$

There were about 30
smelt in each bag.

Check:

$$\begin{array}{r} 30 \text{ quotient} \\ \times 7 \text{ divisor} \\ \hline 210 \\ + 4 \text{ remainder} \\ \hline 214 \text{ dividend} \end{array}$$

EXERCISES

Divide.

1. $3 \overline{) 6}$

2. $3 \overline{) 60}$

3. $3 \overline{) 61}$

4. $3 \overline{) 62}$

5. $4 \overline{) 8}$

6. $4 \overline{) 80}$

7. $4 \overline{) 81}$

8. $4 \overline{) 83}$

9. $9 \overline{) 63}$

10. $9 \overline{) 630}$

11. $9 \overline{) 635}$

12. $9 \overline{) 634}$

13. $5 \overline{) 52}$

14. $7 \overline{) 73}$

15. $8 \overline{) 327}$

16. $6 \overline{) 301}$

Divide. Check your answer.

17. $43 \div 4$

18. $92 \div 9$

19. $642 \div 8$

20. $452 \div 5$

PRACTICE

Find the quotient.

1. $7 \overline{)351}$
2. $3 \overline{)182}$
3. $8 \overline{)405}$
4. $9 \overline{)450}$
5. $5 \overline{)151}$
6. $6 \overline{)425}$
7. $9 \overline{)275}$
8. $4 \overline{)242}$
9. $8 \overline{)640}$
10. $8 \overline{)165}$
11. $5 \overline{)202}$
12. $6 \overline{)303}$
13. $9 \overline{)810}$
14. $7 \overline{)283}$
15. $9 \overline{)726}$

Divide. Check your answers.

16. $182 \div 6$
17. $280 \div 4$
18. $496 \div 7$
19. $140 \div 2$
20. $721 \div 8$
21. $323 \div 4$
22. $120 \div 2$
23. $271 \div 3$
24. $565 \div 8$
25. $563 \div 7$

Write a division question for each checking statement.

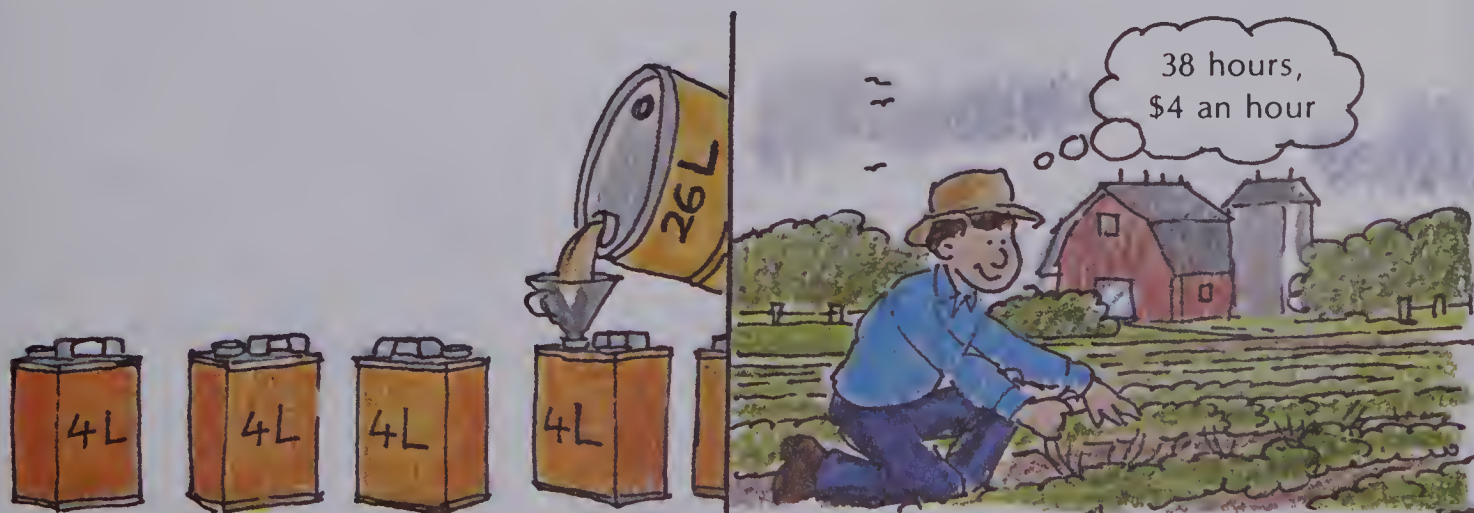
26. $50 \times 5 + 1 = 251$
27. $50 \times 4 + 1 = 201$
28. $40 \times 9 + 4 = 364$

Solve.

29. There are 350 seats for viewing basketball games. If the seats are in 5 equal sections, how many seats are in each section?
30. Patrick delivers 360 newspapers in six days. How many papers would he usually deliver each day?

Imagine

Make up a story problem for each picture.



Two-Stage Division

Mr. Bavari found that he had grown 87 g of dried basil.
He put it in equal amounts in 6 airtight jars.
About how many grams were in each jar?



Divide
8 tens by 6.

Remember
the ones.

Divide
27 by 6.

Write the
remainder.

$$\begin{array}{r} 6 \overline{) 87} \end{array}$$

$$\begin{array}{r} 1 \\ 6 \overline{) 87} \\ \underline{-6} \\ 2 \end{array}$$

$$\begin{array}{r} 1 \\ 6 \overline{) 87} \\ \underline{-6} \downarrow \\ 27 \end{array}$$

$$\begin{array}{r} 14 \\ 6 \overline{) 87} \\ \underline{-6} \\ 27 \\ \underline{-24} \\ 3 \end{array}$$

$$\begin{array}{r} 14R3 \\ 6 \overline{) 87} \\ \underline{-6} \\ 27 \\ \underline{-24} \\ 3 \end{array}$$

There were about 14 grams in each jar.

EXERCISES

Copy and complete each division.

1. $\begin{array}{r} 2 \blacksquare \\ 4 \overline{) 83} \\ \underline{-8} \\ 03 \end{array}$

2. $\begin{array}{r} 2 \blacksquare R \blacksquare \\ 3 \overline{) 62} \\ \underline{-6} \\ 02 \end{array}$

3. $\begin{array}{r} 2 \blacksquare R \blacksquare \\ 4 \overline{) 85} \\ \underline{-8} \\ 05 \end{array}$

4. $\begin{array}{r} 1 \blacksquare R \blacksquare \\ 5 \overline{) 59} \\ \underline{-5} \\ 09 \end{array}$

5. $\begin{array}{r} 2 \blacksquare R \blacksquare \\ 6 \overline{) 127} \\ \underline{-12} \\ 07 \end{array}$

6. $\begin{array}{r} 1 \blacksquare R \blacksquare \\ 3 \overline{) 37} \end{array}$

7. $\begin{array}{r} 1 \blacksquare R \blacksquare \\ 5 \overline{) 74} \end{array}$

8. $\begin{array}{r} 1 \blacksquare R \blacksquare \\ 6 \overline{) 71} \end{array}$

9. $\begin{array}{r} 1 \blacksquare R \blacksquare \\ 8 \overline{) 95} \end{array}$

10. $\begin{array}{r} 4 \blacksquare R \blacksquare \\ 4 \overline{) 166} \end{array}$

11. $4 \overline{) 42}$

12. $3 \overline{) 98}$

13. $7 \overline{) 71}$

14. $5 \overline{) 108}$

15. $6 \overline{) 429}$

Divide. Check your answer.

16. $45 \div 2$

17. $67 \div 4$

18. $59 \div 3$

19. $498 \div 7$

20. $257 \div 5$

PRACTICE

Find the quotient.

1. $3 \overline{)34}$

2. $5 \overline{)64}$

3. $6 \overline{)65}$

4. $8 \overline{)99}$

5. $6 \overline{)80}$

6. $7 \overline{)78}$

7. $2 \overline{)69}$

8. $4 \overline{)59}$

9. $6 \overline{)82}$

10. $5 \overline{)82}$

11. $6 \overline{)128}$

12. $2 \overline{)43}$

13. $4 \overline{)168}$

14. $6 \overline{)83}$

15. $3 \overline{)277}$

Divide. Check your answer.

16. $81 \div 2$

17. $79 \div 7$

18. $89 \div 3$

19. $81 \div 7$

20. $77 \div 4$

21. $75 \div 3$

22. $63 \div 2$

23. $85 \div 4$

24. $68 \div 3$

25. $99 \div 8$

Write a division fact for each multiplication fact.

26. $17 \times 3 = 51$

27. $15 \times 5 = 75$

28. $18 \times 4 = 72$

Find the missing factor.

29. $\blacksquare \times 3 = 87$

30. $\blacksquare \times 4 = 60$

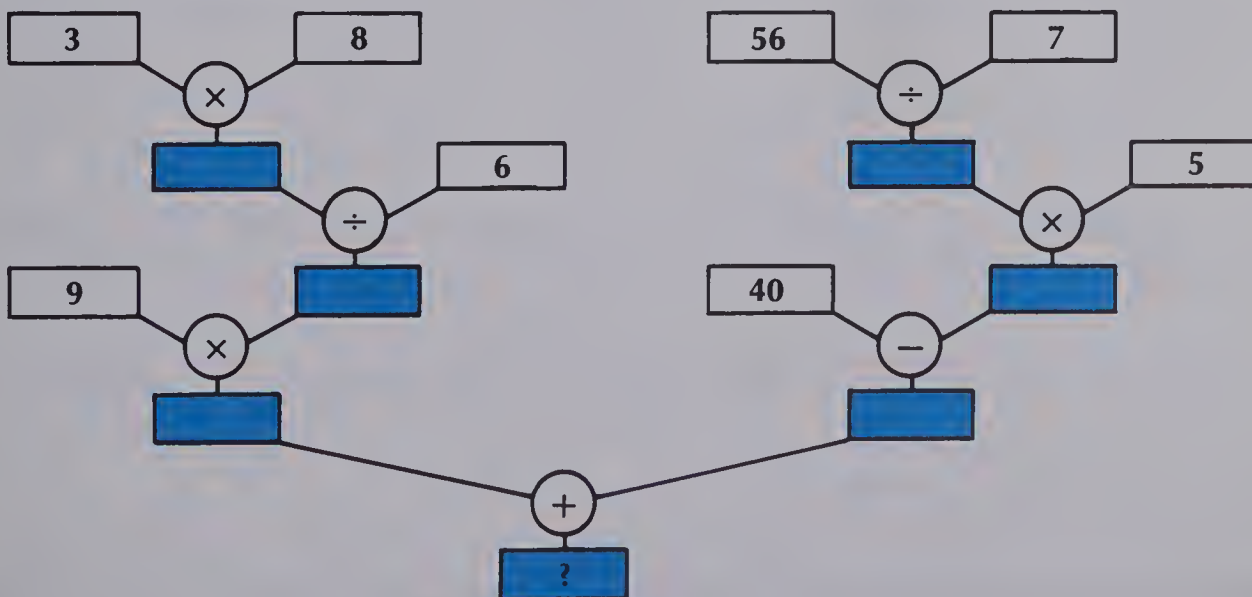
31. $\blacksquare \times 5 = 65$

Solve.

32. Ninety-six people sat at eight tables at a party. How many people per table was that?

Math Hopscotch

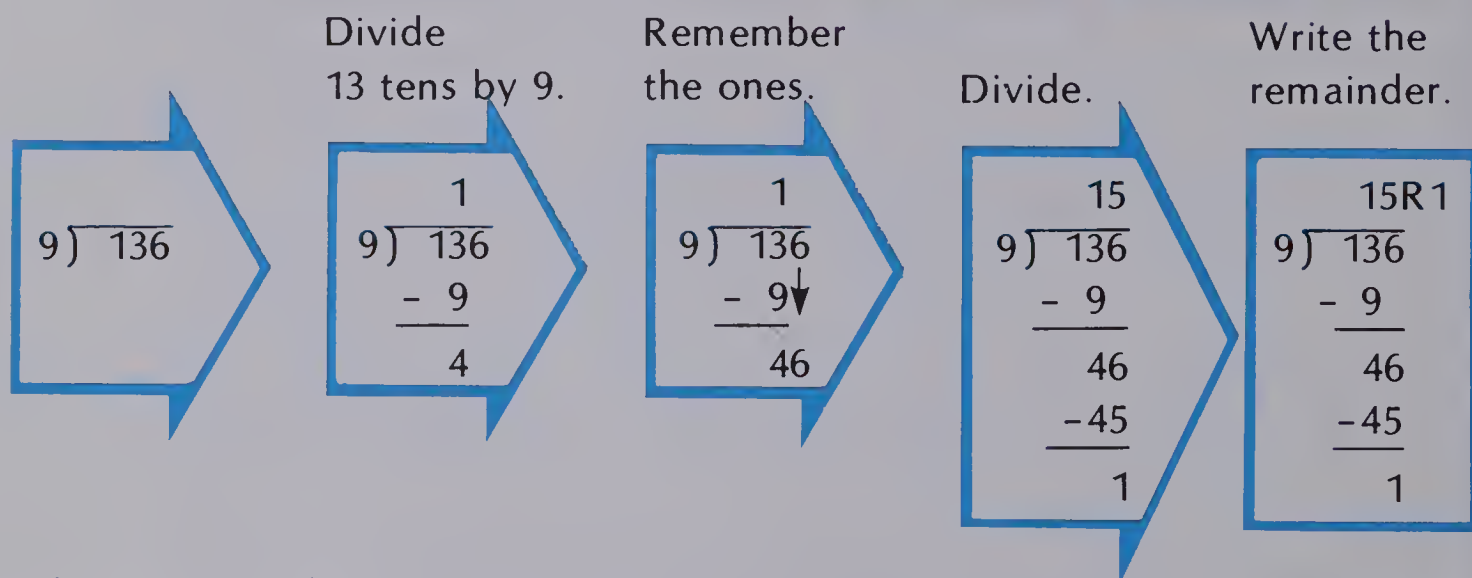
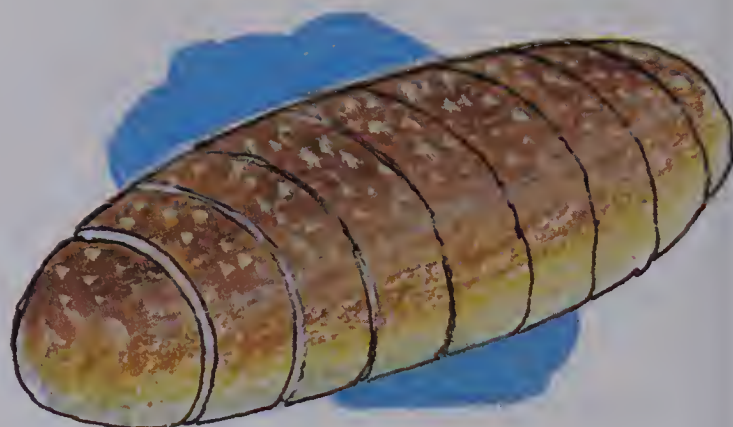
What is the last number?



Two-Stage Division

A bakery makes loaves of rye bread 136 cm long. Each loaf is sliced into 9 equal portions.

About how long is each portion?



Each portion is about 15 cm long.

EXERCISES

Copy and complete the division.

- | | | | | |
|---|---|---|---|---|
| 1. $3 \overline{) 187}$
$\underline{- 18}$
07 | 2. $4 \overline{) 289}$
$\underline{- 28}$
09 | 3. $5 \overline{) 413}$
$\underline{- 40}$
13 | 4. $6 \overline{) 503}$
$\underline{- 48}$
23 | 5. $7 \overline{) 666}$
$\underline{- 63}$
36 |
|---|---|---|---|---|

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 6. $6 \overline{) 400}$ | 7. $7 \overline{) 513}$ | 8. $8 \overline{) 726}$ | 9. $9 \overline{) 867}$ | 10. $5 \overline{) 281}$ |
| 11. $8 \overline{) 482}$ | 12. $9 \overline{) 364}$ | 13. $5 \overline{) 216}$ | 14. $3 \overline{) 200}$ | 15. $7 \overline{) 600}$ |

Divide. Check your answer.

- | | | | | |
|------------------|------------------|------------------|------------------|------------------|
| 16. $167 \div 4$ | 17. $353 \div 5$ | 18. $700 \div 9$ | 19. $201 \div 6$ | 20. $555 \div 8$ |
|------------------|------------------|------------------|------------------|------------------|

PRACTICE

Find the quotient.

- | | | | | |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 1. $3 \overline{)127}$ | 2. $4 \overline{)246}$ | 3. $5 \overline{)371}$ | 4. $6 \overline{)342}$ | 5. $7 \overline{)500}$ |
| 6. $7 \overline{)255}$ | 7. $6 \overline{)548}$ | 8. $7 \overline{)429}$ | 9. $8 \overline{)752}$ | 10. $9 \overline{)849}$ |
| 11. $4 \overline{)298}$ | 12. $4 \overline{)358}$ | 13. $6 \overline{)186}$ | 14. $7 \overline{)306}$ | 15. $8 \overline{)649}$ |

Divide. Check your answer.

- | | | | | |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 16. $5 \overline{)406}$ | 17. $6 \overline{)490}$ | 18. $7 \overline{)299}$ | 19. $8 \overline{)548}$ | 20. $9 \overline{)870}$ |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|

Write a division question for each checking statement.

- | | | |
|-----------------------------|-----------------------------|-----------------------------|
| 21. $6 \times 70 + 5 = 425$ | 22. $7 \times 82 + 4 = 578$ | 23. $8 \times 86 + 3 = 691$ |
|-----------------------------|-----------------------------|-----------------------------|

Solve.

24. A bakery packs 6 rolls in each plastic bag.
How many full bags can be packed with 328 freshly baked rolls?
25. A bakery can make 174 cakes at a time in 3 ovens the same size. How many cakes are in each oven?

REVIEW

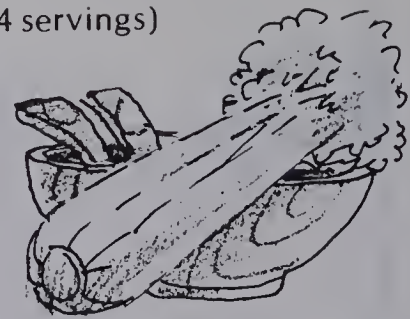
- | | | | | | | | | |
|-----|--------------------|---------------------|--------------------|---------------------|-------------|--------------|-------------|--------------|
| A18 | Divide. | | | | | | | |
| 1. | $9 \overline{)75}$ | 2. | $4 \overline{)19}$ | 3. | $62 \div 7$ | 4. | $49 \div 6$ | |
| A19 | 5. | $4 \overline{)83}$ | 6. | $4 \overline{)362}$ | 7. | $91 \div 3$ | 8. | $495 \div 7$ |
| A20 | 9. | $2 \overline{)89}$ | 10. | $8 \overline{)97}$ | 11. | $45 \div 3$ | 12. | $78 \div 5$ |
| A21 | 13. | $3 \overline{)249}$ | 14. | $4 \overline{)317}$ | 15. | $619 \div 8$ | 16. | $375 \div 9$ |

Three-Stage Division

Eva wants to make this celery salad for one person instead of four. How much celery does she need?

Celery Salad
(4 servings)

725 g celery
0.5 L water
30 mL sugar
15 mL salt
75 mL vinegar



Divide
7 hundreds by 4.

$$\begin{array}{r} 1 \\ 4 \overline{) 725} \\ \underline{-4} \\ 3 \end{array}$$

Divide.

$$\begin{array}{r} 18 \\ 4 \overline{) 725} \\ \underline{-4} \downarrow \\ 32 \\ \underline{-32} \\ 0 \end{array}$$

Divide.

$$\begin{array}{r} 181 \\ 4 \overline{) 725} \\ \underline{-4} \downarrow \\ 32 \\ \underline{-32} \downarrow \\ 05 \\ \underline{-4} \\ 1 \end{array}$$

Write the remainder.

$$\begin{array}{r} 181R1 \\ 4 \overline{) 725} \\ \underline{-4} \\ 32 \\ \underline{-32} \\ 05 \\ \underline{-4} \\ 1 \end{array}$$

She needs about 181 g of celery.

EXERCISES

Copy and complete the division.

1. $\begin{array}{r} 15 \blacksquare R \blacksquare \\ 3 \overline{) 467} \\ \underline{-3} \\ 16 \\ \underline{-15} \\ 17 \end{array}$	2. $\begin{array}{r} 13 \blacksquare R \blacksquare \\ 4 \overline{) 558} \\ \underline{-4} \\ 15 \\ \underline{-12} \\ 38 \end{array}$	3. $\begin{array}{r} 14 \blacksquare R \blacksquare \\ 5 \overline{) 713} \\ \underline{-5} \\ 21 \\ \underline{-20} \\ 13 \end{array}$	4. $\begin{array}{r} 12 \blacksquare R \blacksquare \\ 6 \overline{) 778} \\ \underline{-6} \\ 17 \\ \underline{-12} \\ 58 \end{array}$	5. $\begin{array}{r} 11 \blacksquare R \blacksquare \\ 7 \overline{) 800} \\ \underline{-7} \\ 10 \\ \underline{-7} \\ 30 \end{array}$
---	---	---	---	--

6. $\begin{array}{r} 1 \blacksquare \blacksquare R \blacksquare \\ 5 \overline{) 669} \end{array}$	7. $\begin{array}{r} 1 \blacksquare \blacksquare R \blacksquare \\ 6 \overline{) 853} \end{array}$	8. $\begin{array}{r} 1 \blacksquare \blacksquare R \blacksquare \\ 7 \overline{) 975} \end{array}$	9. $\begin{array}{r} 1 \blacksquare \blacksquare R \blacksquare \\ 8 \overline{) 905} \end{array}$	10. $\begin{array}{r} 2 \blacksquare \blacksquare R \blacksquare \\ 3 \overline{) 888} \end{array}$
11. $2 \overline{) 737}$	12. $3 \overline{) 864}$	13. $4 \overline{) 927}$	14. $5 \overline{) 679}$	15. $6 \overline{) 884}$

Divide. Check your answer.

16. $795 \div 3$ 17. $957 \div 2$ 18. $998 \div 4$ 19. $753 \div 5$ 20. $919 \div 2$

PRACTICE

Find the quotient.

1. $2 \overline{)999}$
2. $3 \overline{)745}$
3. $4 \overline{)951}$
4. $6 \overline{)675}$
5. $7 \overline{)987}$
6. $5 \overline{)661}$
7. $6 \overline{)888}$
8. $8 \overline{)913}$
9. $7 \overline{)802}$
10. $5 \overline{)871}$
11. $7 \overline{)918}$
12. $6 \overline{)769}$
13. $3 \overline{)658}$
14. $3 \overline{)862}$
15. $8 \overline{)999}$

Divide. Check your answer.

16. $311 \div 2$
17. $537 \div 4$
18. $831 \div 5$
19. $729 \div 3$
20. $533 \div 2$

Write a division fact for each multiplication fact.

21. $312 \times 3 = 936$
22. $457 \times 2 = 914$
23. $158 \times 5 = 790$

Find the missing factor.

24. $\blacksquare \times 2 = 778$
25. $3 \times \blacksquare = 441$
26. $\blacksquare \times 5 = 990$

Solve.

27. A recipe that makes 3 servings calls for 327 g carrots and 360 g flour. How much of each is needed for one serving?
28. A recipe that makes 6 servings calls for 750 mL milk and 930 g beef. How much of each is needed for one serving?

Letter Logic

What digit does each letter stand for? Each different letter stands for a different digit.

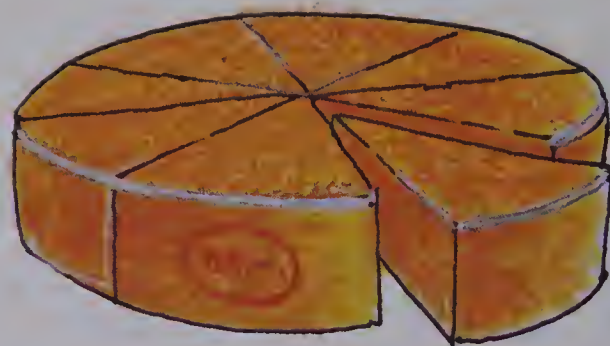
$$\begin{array}{r} \text{QRS} \\ \text{R} \overline{) \text{RSQ}} \\ \underline{- \text{R}} \\ \text{TS} \\ \underline{- \text{U}} \\ \text{QQ} \\ \underline{- \text{QT}} \\ \text{Q} \end{array}$$

Check:

$$\begin{array}{r} \text{QRS} \\ \times \quad \text{R} \\ \hline \text{RST} \\ + \quad \text{Q} \\ \hline \text{RSQ} \end{array}$$

Three-Stage Division

A cheese company makes a 5453 g round of cheddar cheese. The round is cut into 8 equal wedges before it is sold. What is the approximate mass of each wedge?



Divide

54 hundreds by 8.

$$\begin{array}{r} 6 \\ 8 \overline{) 5453} \\ \underline{-48} \\ 6 \end{array}$$

Divide.

$$\begin{array}{r} 68 \\ 8 \overline{) 5453} \\ \underline{-48} \downarrow \\ 65 \\ \underline{-64} \\ 1 \end{array}$$

Divide.

$$\begin{array}{r} 681 \\ 8 \overline{) 5453} \\ \underline{-48} \\ 65 \\ \underline{-64} \downarrow \\ 13 \\ \underline{-8} \\ 5 \end{array}$$

Write the

remainder.

$$\begin{array}{r} 681R5 \\ 8 \overline{) 5453} \\ \underline{-48} \\ 65 \\ \underline{-64} \\ 13 \\ \underline{-8} \\ 5 \end{array}$$

The mass of each wedge is about 681 g.

EXERCISES

Copy and complete the division.

1. $\begin{array}{r} 55 \blacksquare R \blacksquare \\ 3 \overline{) 1655} \\ \underline{-15} \\ 15 \\ \underline{-15} \\ 05 \end{array}$

2. $\begin{array}{r} 57 \blacksquare R \blacksquare \\ 4 \overline{) 2305} \\ \underline{-20} \\ 30 \\ \underline{-28} \\ 25 \end{array}$

3. $\begin{array}{r} 55 \blacksquare R \blacksquare \\ 5 \overline{) 2781} \\ \underline{-25} \\ 28 \\ \underline{-25} \\ 31 \end{array}$

4. $\begin{array}{r} 69 \blacksquare \\ 6 \overline{) 4146} \\ \underline{-36} \\ 54 \\ \underline{-54} \\ 06 \end{array}$

5. $\begin{array}{r} 9 \blacksquare \blacksquare R \blacksquare \\ 5 \overline{) 4674} \end{array}$

6. $\begin{array}{r} 8 \blacksquare \blacksquare R \blacksquare \\ 6 \overline{) 5387} \end{array}$

7. $\begin{array}{r} 8 \blacksquare \blacksquare R \blacksquare \\ 7 \overline{) 6152} \end{array}$

8. $\begin{array}{r} 8 \blacksquare \blacksquare R \blacksquare \\ 8 \overline{) 7089} \end{array}$

9. $6 \overline{) 3092}$

10. $4 \overline{) 1700}$

11. $9 \overline{) 7552}$

12. $8 \overline{) 4099}$

Divide. Check your answer.

13. $4267 \div 6$

14. $3695 \div 5$

15. $2000 \div 3$

16. $5543 \div 4$

PRACTICE

Find the quotient.

- | | | | |
|-------------------------|--------------------------|--------------------------|--------------------------|
| 1. $2 \overline{)1246}$ | 2. $3 \overline{)2467}$ | 3. $3 \overline{)2352}$ | 4. $3 \overline{)2300}$ |
| 5. $6 \overline{)5386}$ | 6. $5 \overline{)3552}$ | 7. $7 \overline{)4600}$ | 8. $8 \overline{)6489}$ |
| 9. $9 \overline{)3700}$ | 10. $7 \overline{)5684}$ | 11. $7 \overline{)3000}$ | 12. $9 \overline{)6578}$ |

Divide. Check your answer.

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 13. $6 \overline{)5600}$ | 14. $5 \overline{)3319}$ | 15. $4 \overline{)1928}$ | 16. $9 \overline{)4000}$ |
|--------------------------|--------------------------|--------------------------|--------------------------|

Write a division question for each checking statement.

- | | |
|-------------------------------|-------------------------------|
| 17. $5 \times 817 + 2 = 4087$ | 18. $6 \times 716 + 3 = 4299$ |
| 19. $9 \times 785 + 7 = 7072$ | 20. $3 \times 818 + 2 = 2456$ |

Solve.

21. The cheese company ships out the same amount of cheese 6 days a week. Last week 5676 cases were shipped. How many cases were shipped each day?
22. Small wedges of Swiss cheese are specially wrapped for gift boxes. Eight wedges are put in each box. If the company has 3400 wedges, how many gift boxes can be made up?

USING THE CALCULATOR

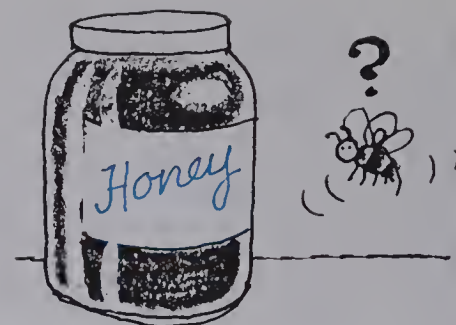
Use a calculator to complete each equation.
Notice the pattern that forms.

- | | |
|----|--|
| A. | $0\ 999\ 999 \div 9 = \blacksquare \div 3 = \blacksquare$ |
| B. | $1\ 999\ 998 \div 9 = \blacksquare \div 6 = \blacksquare$ |
| C. | $2\ 999\ 997 \div 9 = \blacksquare \div 9 = \blacksquare$ |
| D. | $3\ 999\ 996 \div 9 = \blacksquare \div 12 = \blacksquare$ |
| E. | $4\ 999\ 995 \div 9 = \blacksquare \div 15 = \blacksquare$ |
| F. | $5\ 999\ 994 \div 9 = \blacksquare \div 18 = \blacksquare$ |



Four-Stage Division

Mr. Zimmer bottled 9072 g of honey he had processed from his bee hives. He put the honey in equal amounts in 5 jars. About how much honey was in each jar?



Divide

9 thousands by 5. Divide.

$$\begin{array}{r} 1 \\ 5 \overline{) 9072} \\ \underline{-5} \\ 4 \end{array}$$

Divide.

$$\begin{array}{r} 18 \\ 5 \overline{) 9072} \\ \underline{-5} \downarrow \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

Divide.

$$\begin{array}{r} 181 \\ 5 \overline{) 9072} \\ \underline{-5} \downarrow \\ 40 \\ \underline{-40} \downarrow \\ 07 \\ \underline{-5} \\ 2 \end{array}$$

Write the remainder.

$$\begin{array}{r} 1814 \\ 5 \overline{) 9072} \\ \underline{-5} \downarrow \\ 40 \\ \underline{-40} \downarrow \\ 07 \\ \underline{-5} \downarrow \\ 22 \\ \underline{-20} \\ 2 \end{array}$$

$$\begin{array}{r} 1814R2 \\ 5 \overline{) 9072} \\ \underline{-5} \\ 40 \\ \underline{-40} \\ 07 \\ \underline{-5} \\ 22 \\ \underline{-20} \\ 2 \end{array}$$

About 1814 g of honey were in each jar.

EXERCISES

Copy and complete the division.

$$\begin{array}{r} 115 \square R \square \\ 1. \quad 3 \overline{) 3460} \\ \underline{-3} \\ 04 \\ \underline{-3} \\ 16 \end{array}$$

$$\begin{array}{r} 146 \square R \square \\ 2. \quad 4 \overline{) 5873} \\ \underline{-4} \\ 18 \\ \underline{-16} \\ 27 \end{array}$$

$$\begin{array}{r} 122 \square R \square \\ 3. \quad 5 \overline{) 6137} \\ \underline{-5} \\ 11 \\ \underline{-10} \\ 13 \end{array}$$

$$\begin{array}{r} 133 \square R \square \\ 4. \quad 6 \overline{) 7989} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 18 \end{array}$$

$$\begin{array}{r} 1 \square \square \square R \square \\ 5. \quad 5 \overline{) 8738} \end{array}$$

$$\begin{array}{r} 1 \square \square \square \\ 6. \quad 6 \overline{) 9870} \end{array}$$

$$\begin{array}{r} 1 \square \square \square R \square \\ 7. \quad 7 \overline{) 9071} \end{array}$$

$$\begin{array}{r} 1 \square \square \square R \square \\ 8. \quad 8 \overline{) 8975} \end{array}$$

Divide. Check your answer.

9. $7548 \div 6$ 10. $9378 \div 5$ 11. $4947 \div 2$ 12. $6835 \div 3$

PRACTICE

Find the quotient.

1. $2 \overline{)7457}$

2. $3 \overline{)3161}$

3. $5 \overline{)8463}$

4. $4 \overline{)5578}$

5. $2 \overline{)8765}$

6. $3 \overline{)6500}$

7. $4 \overline{)4972}$

8. $6 \overline{)6906}$

9. $4 \overline{)6534}$

10. $5 \overline{)6175}$

11. $6 \overline{)7083}$

12. $7 \overline{)8008}$

Divide. Check your answer.

13. $4863 \div 2$

14. $7553 \div 3$

15. $5167 \div 4$

16. $9771 \div 7$

Divide each number by 3.

17. 6771

18. 5786

19. 9547

20. 8886

Divide each number by 5.

21. 9633

22. 6870

23. 8172

24. 9090

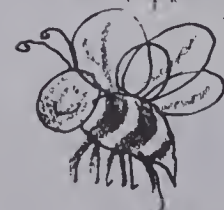
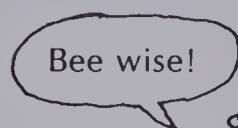
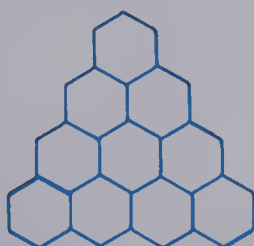
Solve.

25. The queen bee lays nearly 9800 eggs in 5 days. How many eggs is that per day?

26. Mr. Zimmer bottled 4536 g of honey in 3 jars the same size. How much honey was in each jar?

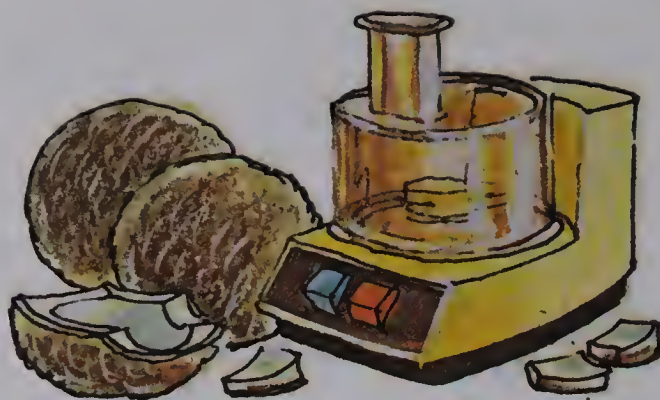
Hexagon Hoax

Move only three hexagons to turn this figure upside-down.



Zero in the Quotient

Irene's mother made 2129 g of shredded coconut in her food processor from 3 coconuts. About how many grams did she get from each coconut?



Divide

21 hundreds

by 3.

$$\begin{array}{r} 3 \overline{) 2129} \end{array}$$

Divide.

$$\begin{array}{r} 7 \\ 3 \overline{) 2129} \\ \underline{-21} \\ 0 \end{array}$$

Divide.

$$\begin{array}{r} 70 \\ 3 \overline{) 2129} \\ \underline{-21} \downarrow \\ 02 \\ \underline{-0} \\ 2 \end{array}$$

Divide.

$$\begin{array}{r} 709 \\ 3 \overline{) 2129} \\ \underline{-21} \downarrow \\ 02 \\ \underline{-0} \downarrow \\ 29 \\ \underline{-27} \\ 2 \end{array}$$

Write the remainder.

$$\begin{array}{r} 709R2 \\ 3 \overline{) 2129} \\ \underline{-21} \\ 02 \\ \underline{-0} \\ 29 \\ \underline{-27} \\ 2 \end{array}$$

She got about 709 g from each coconut.

EXERCISES

Copy and complete the division.

10 R■

$$\begin{array}{r} 1. \quad 5 \overline{) 51} \\ \underline{-5} \\ 01 \end{array}$$

1■ R■

$$\begin{array}{r} 2. \quad 3 \overline{) 32} \\ \underline{-1} \\ 02 \end{array}$$

2■■ R■

$$\begin{array}{r} 3. \quad 4 \overline{) 829} \\ \underline{-8} \\ 02 \end{array}$$

1■■■ R■

$$\begin{array}{r} 4. \quad 7 \overline{) 7105} \\ \underline{-7} \\ 01 \end{array}$$

20 R■

$$\begin{array}{r} 5. \quad 4 \overline{) 83} \\ \underline{-8} \\ 03 \end{array}$$

1■ R■

$$\begin{array}{r} 6. \quad 5 \overline{) 53} \\ \underline{-5} \\ 03 \end{array}$$

6■ R■

$$\begin{array}{r} 7. \quad 7 \overline{) 421} \\ \underline{-42} \\ 01 \end{array}$$

4■■ R■

$$\begin{array}{r} 8. \quad 8 \overline{) 3235} \\ \underline{-32} \\ 03 \end{array}$$

Divide. Check your answer.

9. $81 \div 8$

10. $282 \div 7$

11. $4002 \div 8$

12. $3601 \div 4$

PRACTICE

Find the quotient.

1. $6 \overline{)65}$

2. $2 \overline{)483}$

3. $6 \overline{)651}$

4. $7 \overline{)8429}$

5. $4 \overline{)42}$

6. $3 \overline{)601}$

7. $3 \overline{)1211}$

8. $5 \overline{)2003}$

9. $4 \overline{)83}$

10. $2 \overline{)810}$

11. $5 \overline{)541}$

12. $3 \overline{)3001}$

Divide. Check your answer.

13. $461 \div 2$

14. $805 \div 8$

15. $7049 \div 7$

16. $6472 \div 8$

Write a division question for each checking statement.

17. $6 \times 408 + 4 = 2452$

18. $7 \times 1058 + 4 = 7410$

Find the missing factor.

19. $6 \times \blacksquare = 1248$

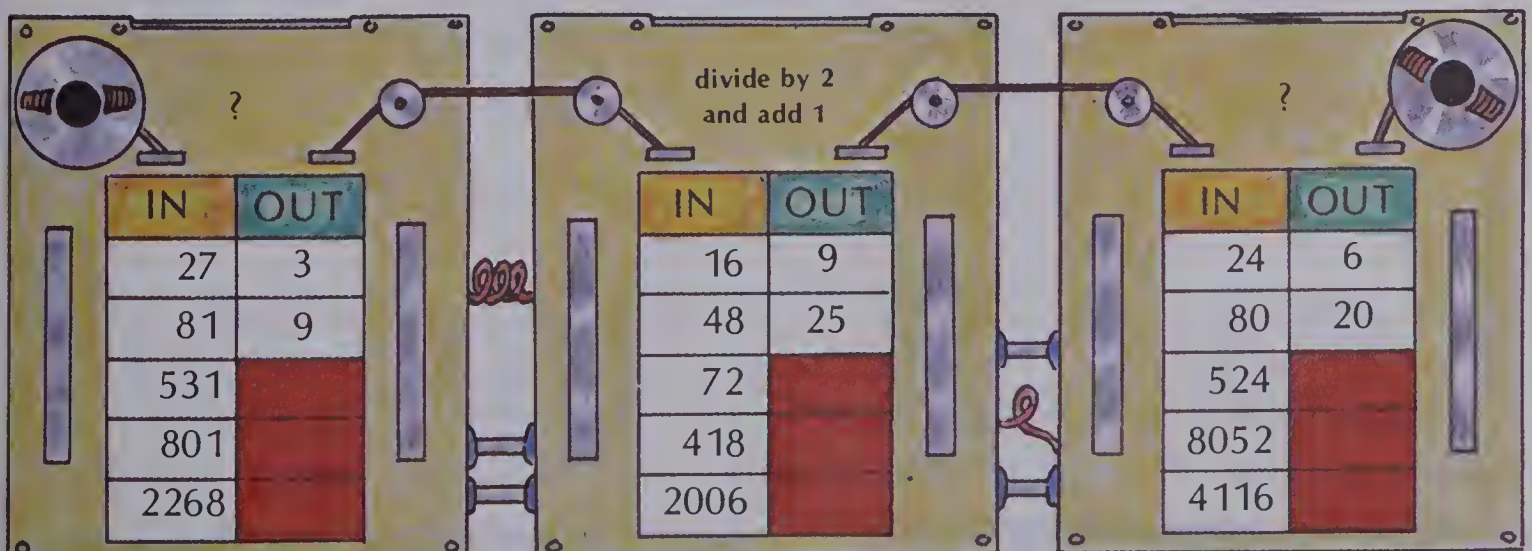
20. $9 \times \blacksquare = 936$

21. $3 \times \blacksquare = 921$

Solve.

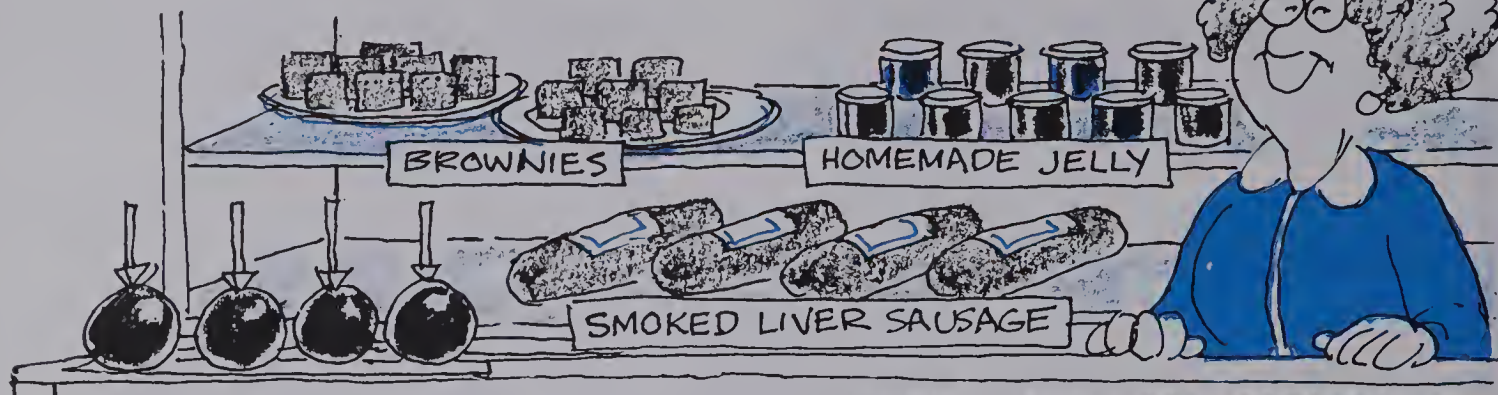
22. Irene's father made 1814 g of peanut butter in the food processor. He packed it in 6 identical plastic cartons. About how many grams were in each carton?

Computer Tutor



Division with Money

If 3 jars of homemade jelly cost \$1.65, what does one jar cost?



Remember
the \$.

Divide.

$$3 \overline{) \$1.65}$$

$$\begin{array}{r} \$. \\ 3 \overline{) \$1.65} \end{array}$$

$$\begin{array}{r} \$0.55 \\ 3 \overline{) \$1.65} \\ - 15 \\ \hline 15 \\ - 15 \\ \hline 0 \end{array}$$



$$\begin{array}{r} \text{Check: } \$0.55 \\ \times 3 \\ \hline \$1.65 \end{array}$$

One jar of jelly costs \$0.55

EXERCISES

Divide.

$$1. \quad \$ \quad 3 \overline{) \$249}$$

$$2. \quad \$. \quad 3 \overline{) \$2.49}$$

$$3. \quad \$ \quad 9 \overline{) \$450}$$

$$4. \quad \$. \quad 9 \overline{) \$4.50}$$

$$5. \quad \$ \quad 6 \overline{) \$918}$$

$$6. \quad \$. \quad 5 \overline{) \$9.18}$$

$$7. \quad \$ \quad 5 \overline{) \$4260}$$

$$8. \quad \$. \quad 5 \overline{) \$42.60}$$

$$9. \quad 2 \overline{) \$0.86}$$

$$10. \quad 3 \overline{) \$0.39}$$

$$11. \quad 4 \overline{) \$4.16}$$

$$12. \quad 8 \overline{) \$6.64}$$

Divide. Check your answer.

$$13. \quad \$826 \div 2$$

$$14. \quad \$105 \div 5$$

$$15. \quad \$2.87 \div 7$$

$$16. \quad \$15.06 \div 3$$

PRACTICE

Divide.

1. $8 \overline{) \$1.76}$

2. $6 \overline{) \$3.66}$

3. $4 \overline{) \$0.96}$

4. $5 \overline{) \$0.75}$

5. $6 \overline{) \$9.42}$

6. $8 \overline{) \$8.96}$

7. $3 \overline{) \$22.89}$

8. $7 \overline{) \$36.75}$

Divide. Check your answer.

9. $3 \overline{) \$13.68}$

10. $8 \overline{) \$48.40}$

11. $6 \overline{) \$8.04}$

12. $7 \overline{) \$21.49}$

Solve.

13. What is the cost of one smoked sausage, if 5 sausages are \$9.50?

14. What is the cost of one brownie, if 8 brownies are 96¢?

15. What is the cost of one box of peanut brittle, if 2 boxes are \$3.20?



16. What is the cost of one taffy apple, if 9 apples are \$2.70?



17. What is the cost of two dinner rolls, if 6 rolls are \$1.08?

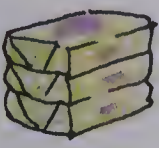
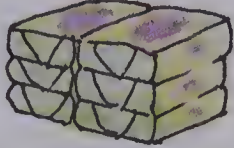




Consumer Problems

Which is the better buy?

A.  or 
 2 L 3 L
 $\$1.65$ $\$2.35$

B.  or 
 3 kg 5 kg
 $\$3.45$ $\$5.50$

C.  or 
 3 bars of soap 6 bars of soap
 $\$1.25$ $\$2.50$

D.  or 
 225 mL 675 mL
 $\$2.50$ $\$7.00$

Problem Solving



Problem 1

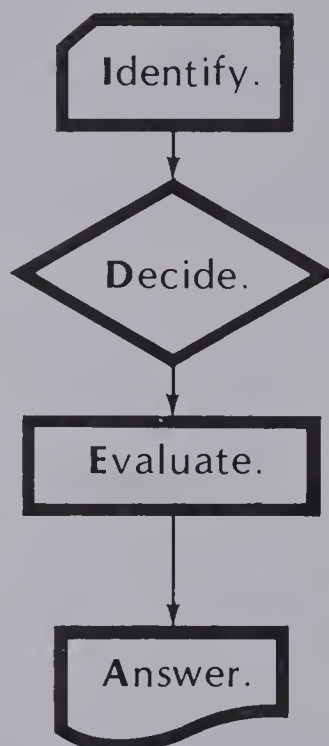
There are 144 cases of apple juice with 8 tins in each case.
How many tins are there in all?

144 cases
8 tins in a case

Multiply.

$$\begin{array}{r} 144 \\ \times 8 \\ \hline 1152 \end{array}$$

There are 1152
tins in all.



Problem 2

Tins of apple juice are being packed 8 to a case. If there are 144 tins of apple juice, how many cases can be packed?

8 tins to a case
144 tins

Divide.

$$\begin{array}{r} 18 \\ 8 \overline{)144} \\ \underline{-8} \\ 64 \end{array}$$

Eighteen cases
can be packed.

EXERCISES

Are these likely to be multiplication or division questions?

1. How many in all?
2. How many in each?
3. What does one cost?
4. How much altogether?
5. How long is each?
6. What do 9 cost?
7. How far in seven hours?
8. How far in one hour?

Write the **Identify** and **Decide** steps.

9. If one bus ticket costs \$8, what do 48 tickets cost?
10. If a car goes 390 km in 6 h, how far does it go in one hour?
11. There are 25 books on each of 7 shelves. How many books are there in all?

PRACTICE

Solve.

1. Paula ran 5 times around a 400 m track. How far did she run?
2. Two bottles of dish detergent are \$1.82. What does one cost?
3. One avocado costs \$0.95. What do 4 cost?
4. If a plane travels at 665 kilometres per hour, how far can it go in 8 h?
5. A 195 cm board is cut into 5 equal pieces. How long is each piece?
6. How many 6-packs of cola can be made up with 372 bottles?
7. A bread truck carries 75 trays of bread. Each tray holds 9 loaves. How much bread does it carry in all?
8. If 2268 g of ground beef are divided into 5 equal parts, how many grams are in two parts?

REVIEW

A22

Divide.

1. $2 \overline{)549}$

2. $3 \overline{)657}$

3. $4 \overline{)572}$

4. $8 \overline{)995}$

A23

5. $5 \overline{)3574}$

6. $6 \overline{)4259}$

7. $9 \overline{)2151}$

8. $7 \overline{)5011}$

A24

9. $8316 \div 4$

10. $9572 \div 3$

11. $8960 \div 5$

12. $6753 \div 2$

A25

13. $7 \overline{)74}$

14. $3 \overline{)619}$

15. $5 \overline{)5004}$

16. $4 \overline{)8107}$

M3

17. $\$5.25 \div 5$

18. $\$3.86 \div 2$

19. $\$43.72 \div 8$

20. $\$71.05 \div 7$

Divide.

1. $6 \overline{)39}$

2. $8 \overline{)37}$

3. $3 \overline{)25}$

4. $7 \overline{)53}$

5. $9 \overline{)71}$

6. $214 \div 7$

7. $486 \div 8$

8. $304 \div 5$

9. $727 \div 9$

10. $563 \div 8$

11. $47 \div 2$

12. $93 \div 3$

13. $35 \div 2$

14. $89 \div 7$

15. $97 \div 6$

16. $429 \div 5$

17. $632 \div 8$

18. $115 \div 2$

19. $413 \div 9$

20. $265 \div 4$

21. $4 \overline{)624}$

22. $5 \overline{)817}$

23. $6 \overline{)906}$

24. $7 \overline{)811}$

25. $7 \overline{)2513}$

26. $6 \overline{)4725}$

27. $2 \overline{)1158}$

28. $8 \overline{)3359}$

29. $2 \overline{)4792}$

30. $6 \overline{)7997}$

31. $8 \overline{)9737}$

32. $5 \overline{)7435}$

33. $3 \overline{)617}$

34. $4 \overline{)809}$

35. $5 \overline{)3504}$

36. $2 \overline{)4001}$

37. $8 \overline{)\$728}$

38. $3 \overline{)\$0.36}$

39. $9 \overline{)\$5.49}$

40. $3 \overline{)\$15.18}$

Solve.

41. If 3 pairs of socks cost \$7.20, what does one pair cost?
42. Each box of tea has 150 tea bags. How many tea bags are there in 7 boxes?
43. Ted divided 1361 g of chili equally into 6 plastic containers. About how many grams were in each container?
44. Five boxes containing a total of 245 bags of potato chips were delivered to a store. How many bags were in each box?

MULTIPLICATION

Multiply.

$$\begin{array}{r} 1. \quad 80 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 50 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 53 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 75 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 68 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 600 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 708 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 4000 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 3586 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 5709 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 53 \\ \times 30 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 72 \\ \times 90 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 67 \\ \times 60 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 41 \\ \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 29 \\ \times 14 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 86 \\ \times 19 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 23 \\ \times 32 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 46 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 87 \\ \times 83 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 59 \\ \times 78 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 65¢ \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad \$3.25 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad \$12.55 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad \$8.24 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad \$0.15 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 26. \quad 6.2 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 5.9 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 76.2 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 29. \quad 3.7 \\ \times 95 \\ \hline \end{array}$$

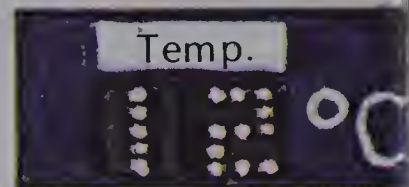
$$\begin{array}{r} 30. \quad 4.8 \\ \times 56 \\ \hline \end{array}$$

Solve.

31. What temperature is 18°C below the boiling point of water?
32. Twelve buses carrying 35 people each drove skiers to the nearest ski area. How many people was that in all?
33. What is the cost of 4 railway tickets at \$24.95 a ticket?
34. An auditorium has 95 rows of seats with 35 seats in each row. How many seats are there in all?

UNIT 5

MEASUREMENT



Departures from Calgary		
Destination	Time	Air Dis
Vancouver	07:00	690
Chicago	07:35	2296
Regina	08:00	669
Los Angeles	08:15	2045
Winnipeg	08:30	1192
Toronto	10:05	2690
Montreal	10:45	2986
New York	11:00	3286
Ottawa	11:20	2861



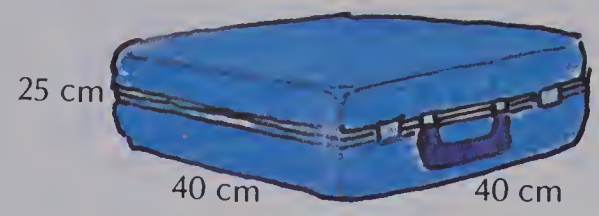
Carry-On Luggage

Can you use this case as carry-on luggage? If not, why not?

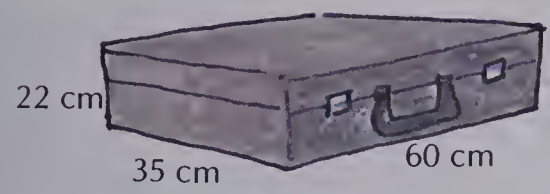
1.



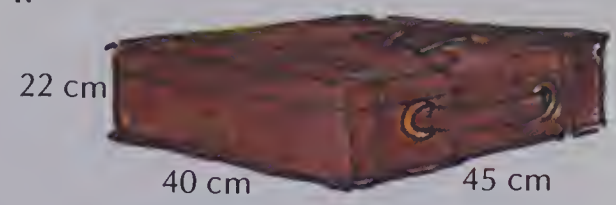
2.



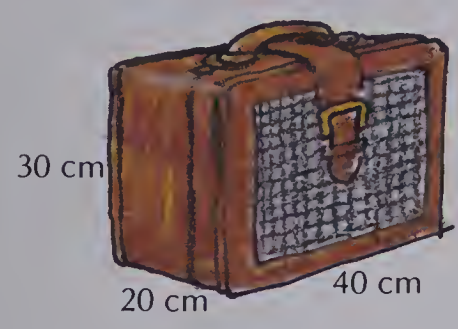
3.



4.



5.



6.

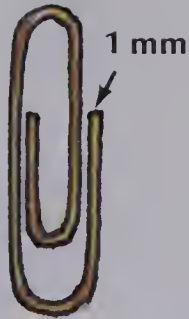
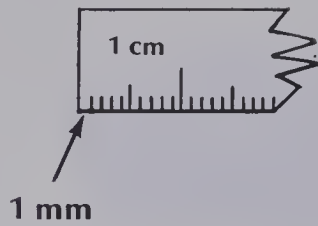


Copy and complete.

Unit	Symbol	
millimetre	■	1 m = 1000 ■
centimetre	■	1 m = 100 ■
decimetre	■	1 m = 10 ■
metre	m	
kilometre	■	■ m = 1 km

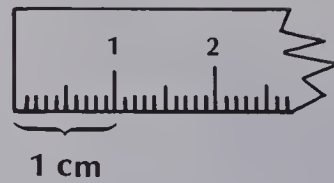
Length

millimetre

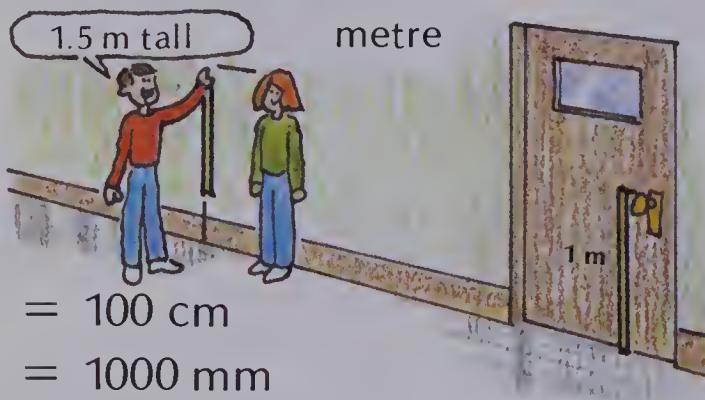


$$10 \text{ mm} = 1 \text{ cm}$$

centimetre



$$1 \text{ cm} = 10 \text{ mm}$$



$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ m} = 1000 \text{ mm}$$

kilometre



$2\frac{1}{2}$ times around the track is
400 m + 400 m + 200 m.

$$1000 \text{ m} = 1 \text{ km}$$

EXERCISES

Would *kilometres* or *metres* be used to measure:

1. the length of a soccer field
2. the height of a mountain
3. the width of a street
4. the length of a river
5. the distance across Canada
6. the height of a building

Would *centimetres* or *millimetres* be used to measure:

7. the thickness of a dime
8. the length of a pencil
9. the width of a hair
10. the length of a candy bar

11. Measure in centimetres.



12. Measure in millimetres.



PRACTICE

Would *kilometres, metres, centimetres, or millimetres* be used to measure:

1. your height
2. the thickness of wire
3. the length of skis
4. the distance to a nearby town
5. the length of a comb
6. the length of a parking lot
7. the thickness of a toothpick
8. a marathon race

Estimate each length. Check the accuracy by actual measurements.

9. the length of your shoe
10. your height
11. the length of your arm
12. the thickness of a quarter
13. the length of your classroom
14. the length of a school hallway

	Estimate	Actual Measure
9.		
10.		
11.		
12.		
13.		
14.		

Copy and complete.

15. $20 \text{ mm} = \blacksquare \text{ cm}$
16. $700 \text{ cm} = \blacksquare \text{ m}$
17. $3000 \text{ m} = \blacksquare \text{ km}$
18. $3 \text{ cm} = \blacksquare \text{ mm}$
19. $5 \text{ km} = \blacksquare \text{ m}$
20. $4 \text{ m} = \blacksquare \text{ cm}$

Write in expanded form.

21. $27 \text{ m} = 20 \text{ dm} + \blacksquare \text{ cm}$
22. $281 \text{ cm} = \blacksquare \text{ m} + 8 \text{ dm} + \blacksquare \text{ cm}$
23. $52 \text{ m} = \blacksquare \text{ dm} + \blacksquare \text{ cm}$
24. $394 \text{ cm} = \blacksquare \text{ m} + \blacksquare \text{ dm} + \blacksquare \text{ cm}$

Deca

“Deca” means ten. $10 \text{ m} = 1 \text{ dam}$ (decametre)

Copy and complete.

A. 1 dam is:

dam	m	dm	cm	mm
1	■	■	■	■

B. 8 dam are:

dam	m	dm	cm	mm
8	■	■	■	■



Perimeter

Mr. Sanchos is making a picture frame.
How long must the wood be to go around all four sides?

$$50 \text{ cm} + 60 \text{ cm} + 50 \text{ cm} + 60 \text{ cm} = 220 \text{ cm}$$

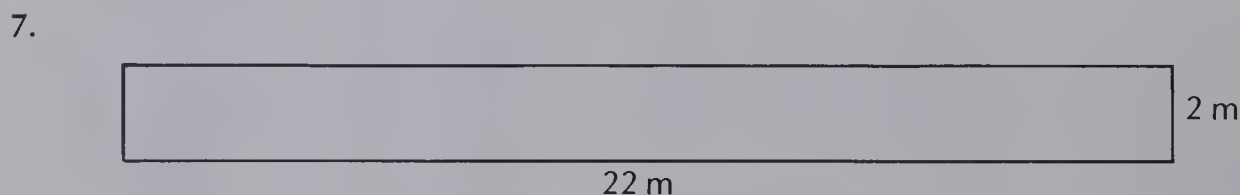
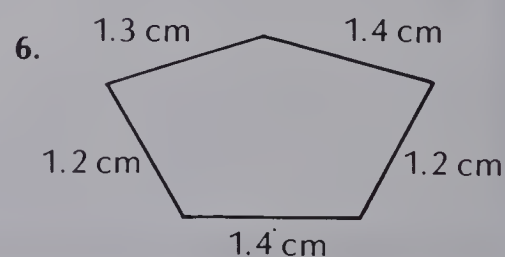
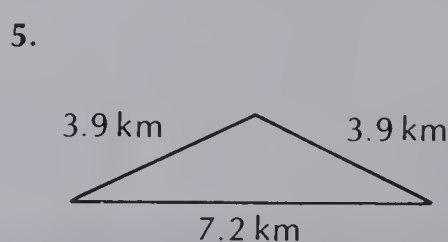
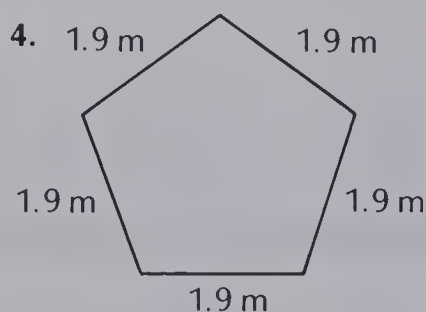
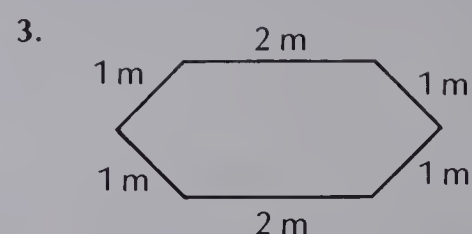
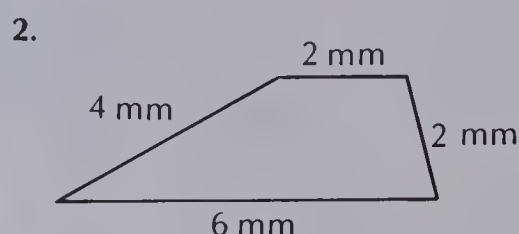
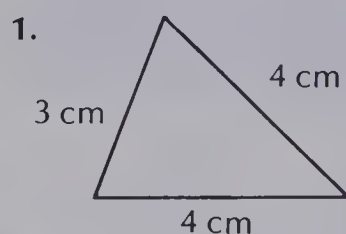
The wood must be 220 cm long.

The distance around a figure is called the **perimeter**.
Add the lengths of all the sides to find the perimeter.

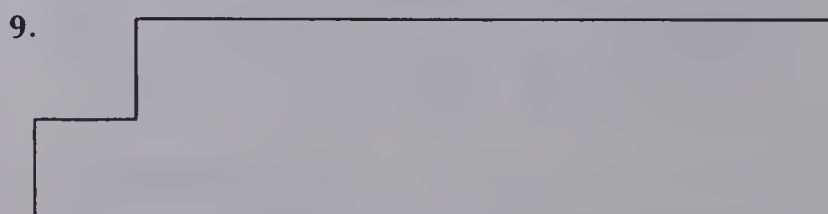
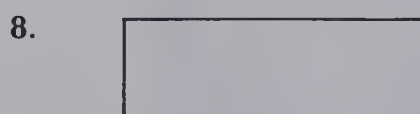


EXERCISES

What is the perimeter of each figure?



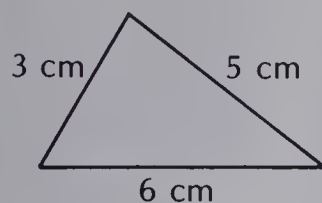
Find the perimeter. (Measure the sides in centimetres.)



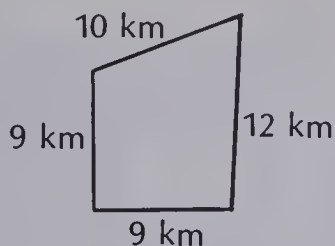
PRACTICE

What is the perimeter of each figure?

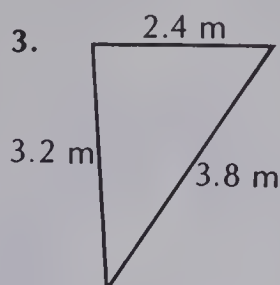
1.



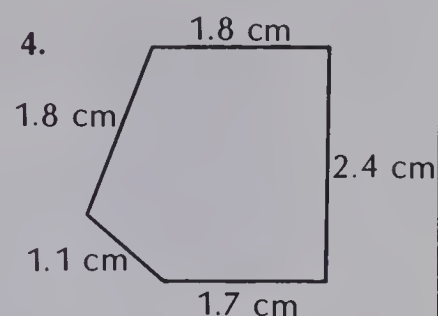
2.



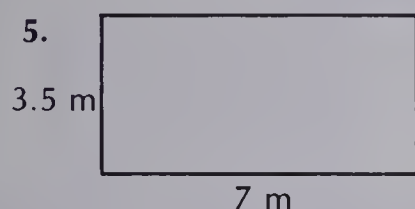
3.



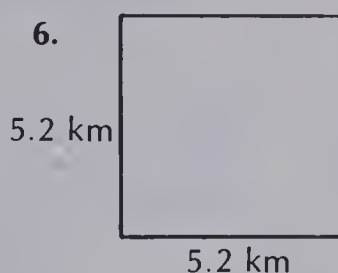
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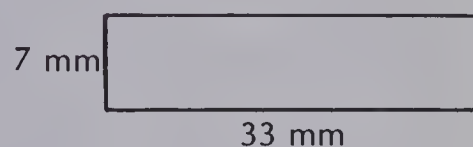
5.



6.

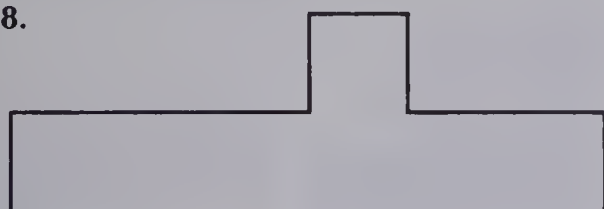


7.

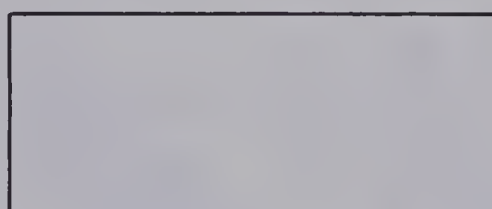


Find the perimeter. (Measure the sides in centimetres.)

8.



9.



USING THE CALCULATOR

Use a calculator to answer these questions.

- What is the perimeter of Alberta?
- What is the perimeter of Saskatchewan?
- The perimeter of Manitoba is 3730 km. How long is the unmarked side?
- What is the perimeter of all three Prairie Provinces together?



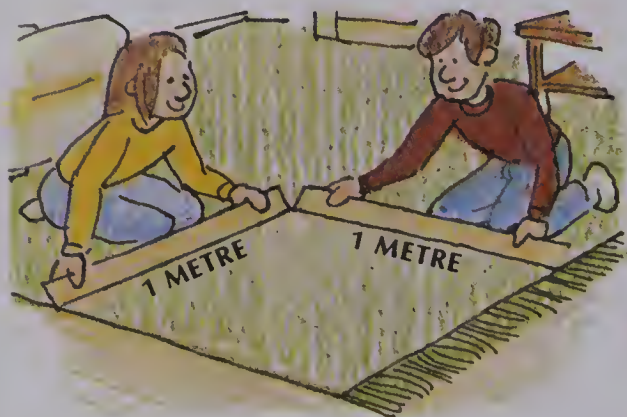
Area


The number of square units on the surface of a figure is its **area**.

Some square units that can be used are:

square centimetres (cm^2)


square metres (m^2)

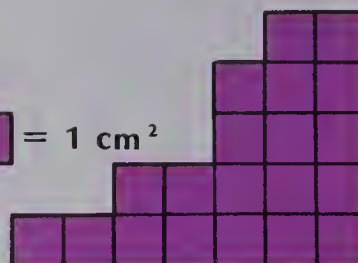


 = 1 m^2




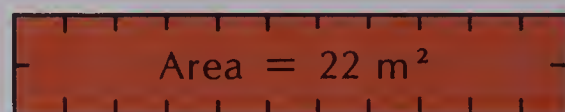
Area = 34 m^2

 = 1 cm^2




Area = 20 cm^2

 = 1 m^2



EXERCISES

What is the area in square centimetres?  = 1 cm^2 .

1.



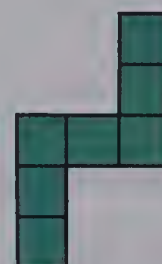
2.




3.



4.



What is the area in square metres?  = 1 m^2 .

5.



6.



7.

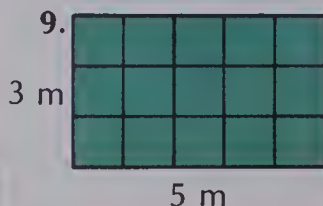


8.

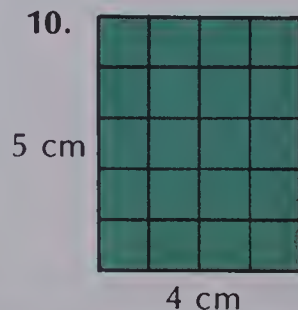


What is the area?

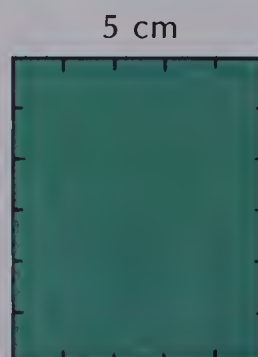
9.



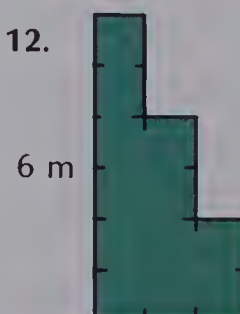
10.




11.

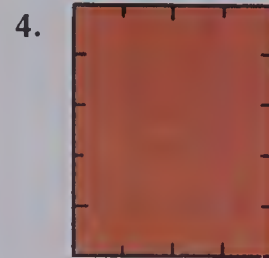
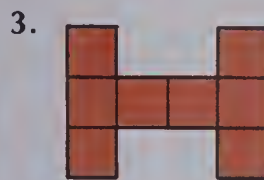
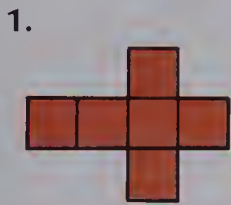



12.

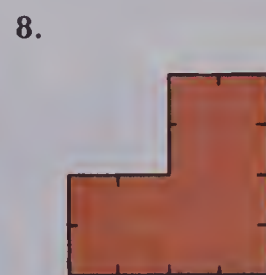
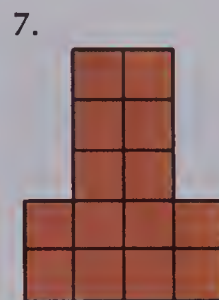


PRACTICE

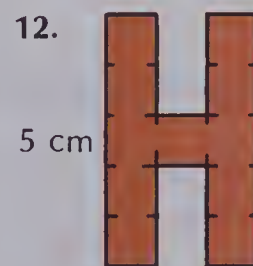
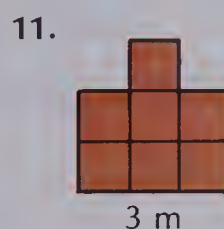
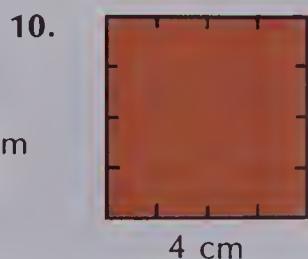
What is the area in square centimetres?  = 1 cm².



What is the area in square metres?  = 1 m².



What is the area?



Choose the more likely area.

13. a record album cover: 961 cm² or 9 m²
14. a dollar bill: 108 m² or 108 cm²
15. a basketball court: 364 m² or 364 cm²

Thirty-Six Squares

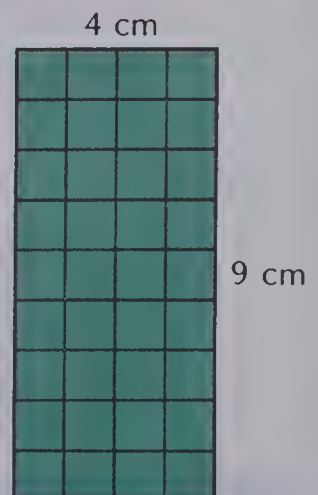
The drawing represents a rectangle that has an area of 36 cm² and a perimeter of 26 cm.

Draw five other rectangles with an area of 36 cm².

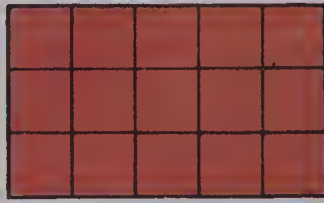
What are the perimeters of these rectangles?

Which has the smallest perimeter?

Area = 36 cm²
Perimeter = 26 cm



Area of a Rectangle



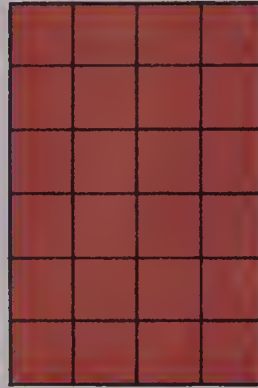
3 cm
width

5 cm length

$$\text{Area} = \text{length} \times \text{width}$$

$$\text{Area} = 5 \text{ cm} \times 3 \text{ cm}$$

$$\text{Area} = 15 \text{ cm}^2$$



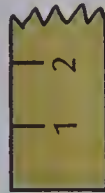
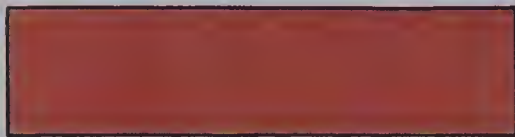
6 m
length

4 m
width

$$\text{Area} = \text{length} \times \text{width}$$

$$\text{Area} = 6 \text{ m} \times 4 \text{ m}$$

$$\text{Area} = 24 \text{ m}^2$$

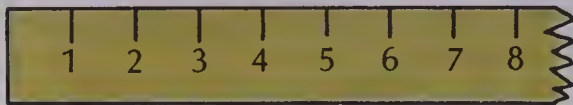


width

$$\text{Area} = \text{length} \times \text{width}$$

$$\text{Area} = 8 \text{ cm} \times 2 \text{ cm}$$

$$\text{Area} = 16 \text{ cm}^2$$



length

EXERCISES

What is the area of the rectangle?

1. $\text{Area} = \text{length} \times \text{width}$

$$\text{Area} = 4 \text{ m} \times 3 \text{ m}$$

$$\text{Area} = \blacksquare \text{ m}^2$$



9 m

2. $\text{Area} = \text{length} \times \text{width}$

$$\text{Area} = 80 \text{ cm} \times 50 \text{ cm}$$

$$\text{Area} = \blacksquare \blacksquare^2$$

3. $\text{Area} = \text{length} \times \text{width}$

$$\text{Area} = \blacksquare \times \blacksquare$$

$$\text{Area} = \blacksquare$$

4. length = 16 cm

$$\text{width} = 10 \text{ cm}$$

$$\text{Area} = \blacksquare$$

5. length = 24 m

$$\text{width} = 6 \text{ m}$$

$$\text{Area} = \blacksquare$$

6. length = 35 m

$$\text{width} = 11 \text{ m}$$

$$\text{Area} = \blacksquare$$

Measure the length and width in centimetres. Find the area.

7.

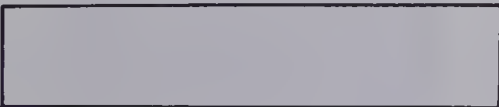
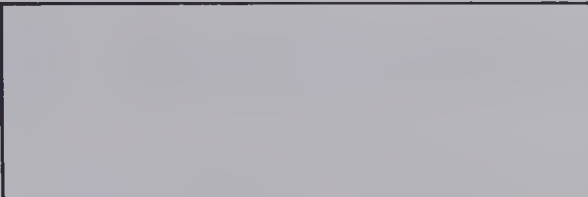


PRACTICE

What is the area of the rectangle?

- | | | |
|------------------------------------|-------------------------------------|-----------------------------------|
| 1. length = 50 m
width = 30 m | 2. length = 19.5 cm
width = 8 cm | 3. length = 16 m
width = 0.5 m |
| 4. length = 37 cm
width = 28 cm | 5. length = 8.5 m
width = 6 m | 6. length = 7 cm
width = 55 cm |

Measure the length and width in centimetres. Find the area.

- | | |
|--|---|
| 7.  | 8.  |
|--|---|

9. A gym mat measures 6 m by 1.5 m. What is its area?
10. A rectangle has an area of 32 m^2 .
The width is 4 m. What is its length?

REVIEW

M4

Complete.

- | | | |
|---------------|-----------------|---------------|
| 1. 3 km = ■ m | 2. 90 mm = ■ cm | 3. 2 m = ■ cm |
|---------------|-----------------|---------------|



M5

Solve.

4. A rectangular city block is 150 m wide and 250 m long.
What is its perimeter?

M6

Find the area.

- | | |
|--|--|
| 5. 
9 cm | 6. 
4 m |
|--|--|

M7

- | | |
|---|--|
| 7. length = 12 m
width = 9 m
Area = ■ | 8. length = 20 cm
width = 12 cm
Area = ■ |
|---|--|

Volume

The number of cubic units contained in a solid is its **volume**.

Some cubic units that can be used are:

cubic centimetres (cm^3)

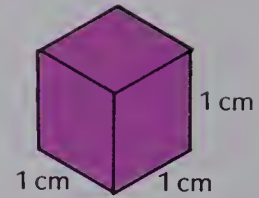
cubic metres (m^3)

There are 3×2 cubes in each layer of the block. There are 2 layers.

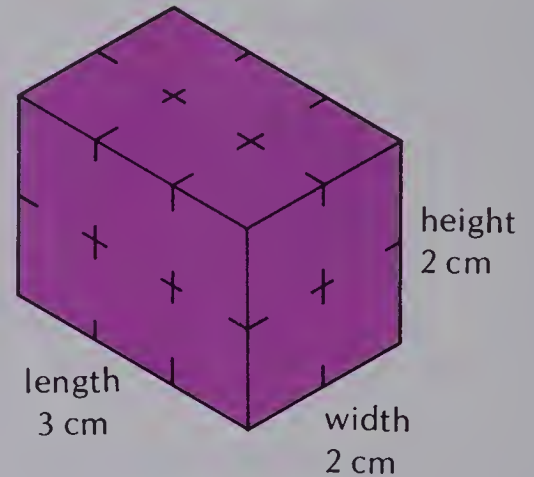
Volume = length \times width \times height

Volume = $3 \text{ cm} \times 2 \text{ cm} \times 2 \text{ cm}$

Volume = 12 cm^3



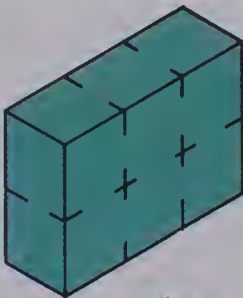
one cubic centimetre (1 cm^3)



EXERCISES

Find the volume of the block.

1.



Volume = length \times width \times height

Volume = $3 \text{ cm} \times 1 \text{ cm} \times 2 \text{ cm}$

Volume = $\blacksquare \text{ cm}^3$

2.

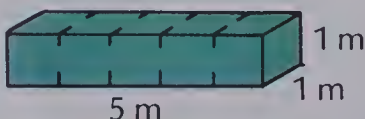


Volume = length \times width \times height

Volume = $3 \text{ m} \times 3 \text{ m} \times 1 \text{ m}$

Volume = \blacksquare

3.

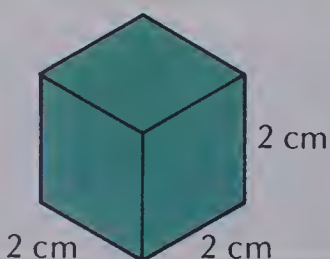


Volume = length \times width \times height

Volume = $\blacksquare \times \blacksquare \times \blacksquare$

Volume = \blacksquare

4.



Volume = length \times width \times height

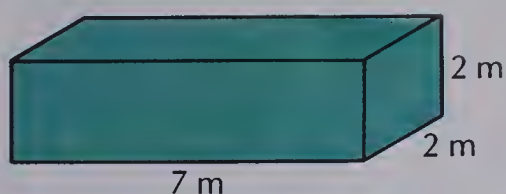
Volume = $\blacksquare \times \blacksquare \times \blacksquare$

Volume = \blacksquare

PRACTICE

Find the volume.

1.



Volume = length \times width \times height

Volume = $\blacksquare \times \blacksquare \times \blacksquare$

Volume = \blacksquare

2. length = 5 cm
width = 3 cm
height = 9 cm

3. length = 2 m
width = 9 m
height = 10 m

4. length = 12 cm
width = 5 cm
height = 20 cm

5. length = 8 m
width = 9 m
height = 6 m

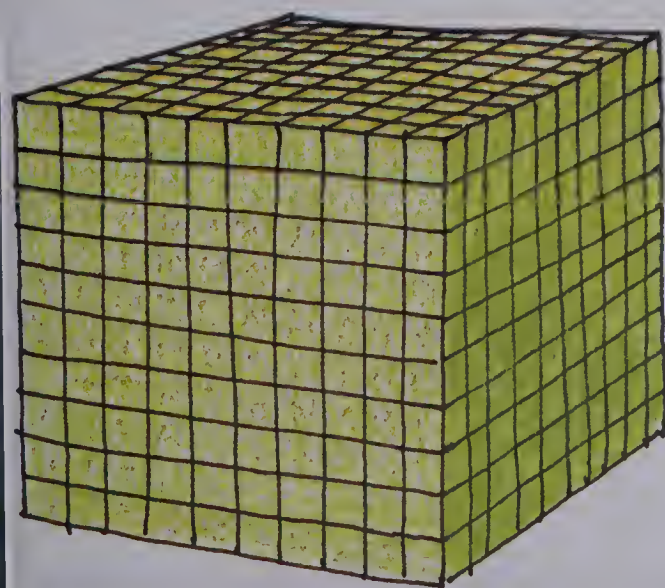
6. length = 5 cm
width = 10 cm
height = 15 cm

7. length = 20 m
width = 30 m
height = 10 m

Solve.

8. A shoe box is 30 cm long, 20 cm wide, and 15 cm high.
What is its volume?
9. Find the volume of a room 10 m long, 8 m wide, and 3 m high.
10. A block with a volume of 36 cm^3 is 2 cm wide and 3 cm high. How long is the block?

A Special Cube



Copy and complete.

length = 10 cm

width = 10 cm

height = 10 cm

Volume = \blacksquare

or

length = 1 \blacksquare

width = 1 \blacksquare


height = 1 \blacksquare

Volume = 1 \blacksquare

Try to make a cube with the above measurements.

Capacity

A **millilitre** is the amount of liquid that can be put in a cubic centimetre.

 1 mL

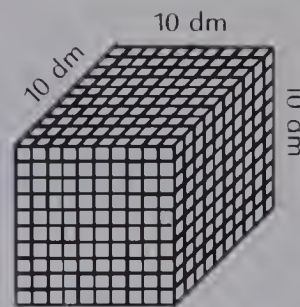


A teaspoon holds about 5 mL.

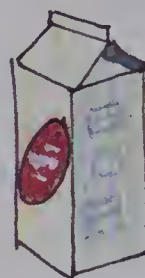


A coffee cup holds about 235 mL.

A **litre** is the amount of liquid that can be put in a cubic decimetre.



1 L = 1000 mL



EXERCISES

Would *litres* or *millilitres* be used to measure the capacity?

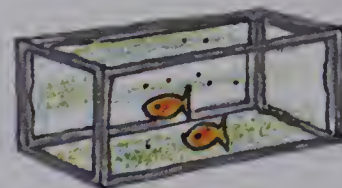
1.



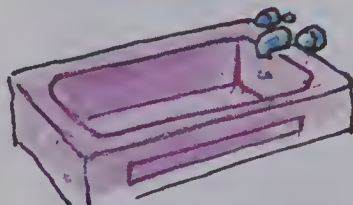
2.



3.



4.



5.



6.



Choose the more likely capacity.

7. flower vase: 500 mL or 50 L
8. soup bowl: 35 L or 350 mL
9. bleach bottle: 3 L or 30 mL
10. soup can: 2 L or 280 mL
11. perfume bottle: 800 mL or 8 mL
12. cream pitcher: 400 mL or 4 mL
13. bottle of glue: 12 mL or 120 mL
14. nail polish: 115 mL or 15 mL

PRACTICE

Choose the more likely capacity.

1. a large shampoo bottle
900 mL or 9 L
2. a fill-up of gas
3 L or 32 L
3. a ginger ale bottle
7 L or 750 mL
4. a child's wading pool
80 L or 8 L

Estimate the capacity.

5. a bath tub
6. a can of pop
7. a soup spoon
8. a garden sprinkling can

Copy and complete.

9. 1000 mL = ■ L
10. 5 L = ■ mL
11. 8000 mL = ■ L
12. 350 mL + 425 mL = ■
13. 16 L — ■ L = 5 L
14. 6 L + 240 mL = ■ mL

Solve.

15. René made café au lait with 120 mL of strong coffee and 120 mL of hot milk. How much café au lait did she make?
16. A bottle of root beer contained 1 L. Ava drank 200 mL and Rod drank 250 mL. How much was left in the bottle?

Hecto

"Hecto" means hundred. 100 L = 1 hL (hectolitre)

Copy and complete.

a. Order these from largest to smallest:

1 cL, 1 daL, 1 dL, 1 hL, 1 kL, 1 L, 1 mL

b. 1 hL is:

kL	hL	daL	L	dL	cL	mL
■	1	■	■	■	■	■



Mass

gram

a raisin



1 cm³ of water

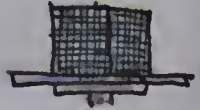


Both have a mass of about 1 g.

kilogram



1000 cm³ or
1 dm³ of water



Both have a mass of 1 kg.

$$1 \text{ kg} = 1000 \text{ g}$$



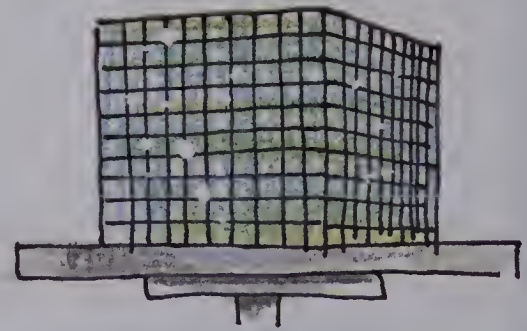
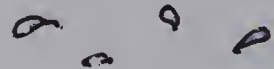
10 heavy
football players

tonne

$$1 \text{ t} = 1000 \text{ kg}$$



1 m³ of water



EXERCISES

Would *grams*, *kilograms*, or *tonnes* be used to measure the mass?

1.



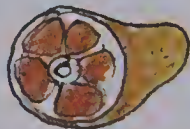
2.



3.



4.



5.



6.



What is the more likely mass?

7. five potatoes: 1 kg or 5 kg
9. an elephant: 400 kg or 4 t
11. five paper clips: 5 g or 45 g
13. one train car: 2 t or 20 t

8. a table telephone: 14 kg or 1400 g
10. a large apple: 230 g or 2 kg
12. a one-year-old child: 1100 g or 11 kg
14. two raisins: 2 g or 120 g

PRACTICE

Choose the more likely mass.

1. a turkey: 60 g or 6 kg
2. 25 raisins: 25 g or 250 g
3. a ski boot: 1.7 kg or 17 kg
4. 3 L milk: 300 g or 3 kg
5. a small car: 1 t or 100 kg
6. a tennis ball: 50 g or 550 g

Copy and complete.

7. $1 \text{ kg} = \blacksquare \text{ g}$
8. $9000 \text{ g} = \blacksquare \text{ kg}$
9. $4000 \text{ g} = \blacksquare \text{ kg}$
10. $1 \text{ t} = \blacksquare \text{ kg}$
11. $5000 \text{ kg} = \blacksquare \text{ t}$
12. $2000 \text{ kg} = \blacksquare \text{ t}$
13. $1 \text{ kg} + 250 \text{ g} = \blacksquare \text{ g}$
14. $900 \text{ g} + 1100 \text{ g} = \blacksquare \text{ kg}$
15. $4 \text{ kg} - 500 \text{ g} = \blacksquare \text{ g}$
16. $1 \text{ t} = 100 \text{ kg} + \blacksquare \text{ kg}$

By how much is the mass smaller or larger than 1 t?

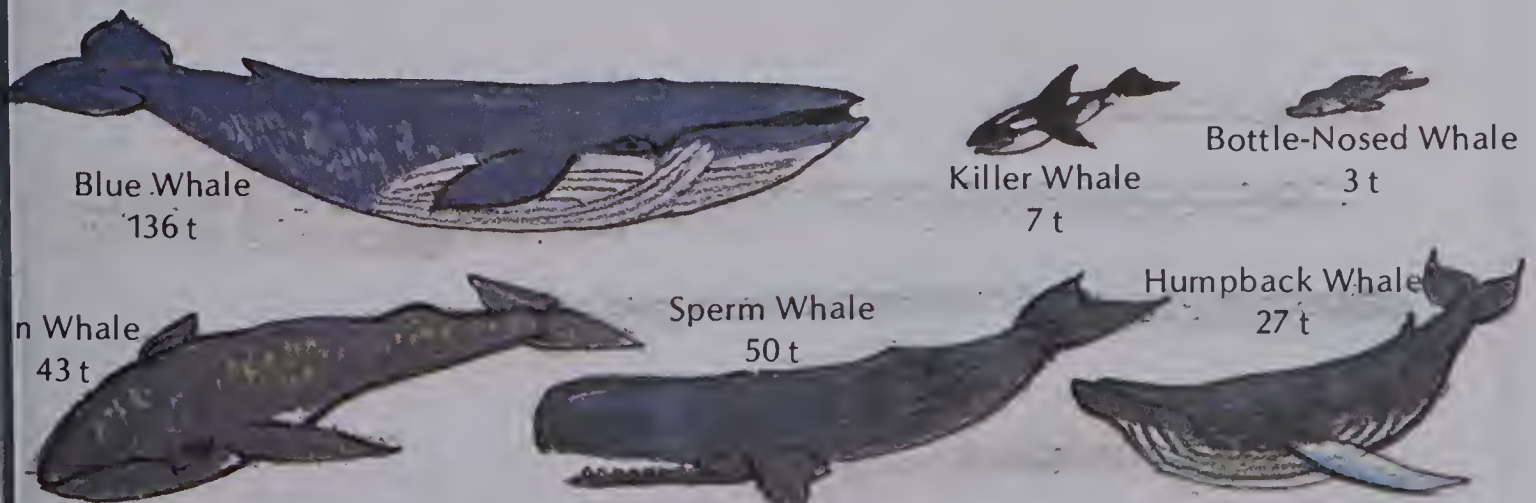
17. 950 kg
18. 2460 kg
19. 0.5 t
20. 145 kg
21. 1.5 t

Solve.

22. One tub of honey has a mass of 3.6 kg. What would be the mass of 4 tubs this size?
23. Mr. Bauer went on a diet. His mass went from 90 kg to 78 kg. How much did he lose?

Stunning Tonnes

Make a bar graph of the masses of these whales.

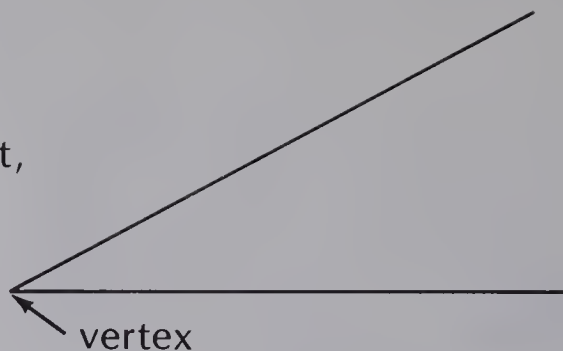


What is the mass of each whale in kilograms?

Angles

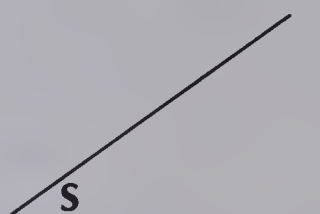
When two straight lines or line segments meet, they form an **angle**.

The point where the two lines meet is called the **vertex**.

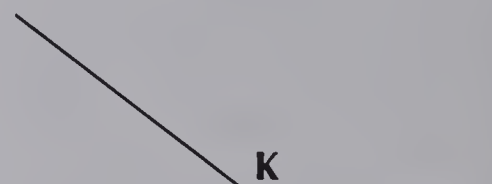


Angle **R** is a **right angle**.

Test it with the square corner of a piece of paper.



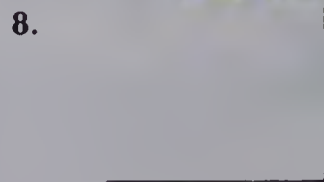
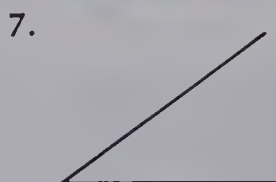
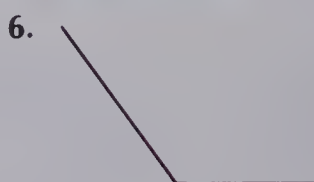
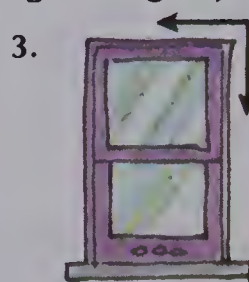
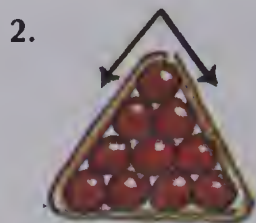
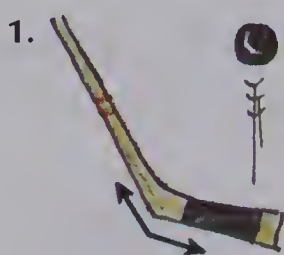
Angle **S** is smaller than a right angle.



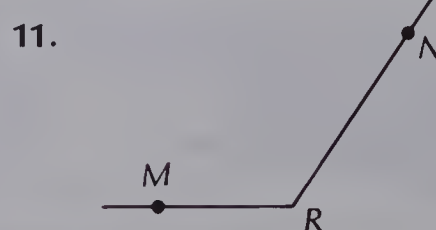
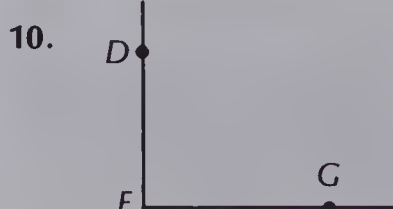
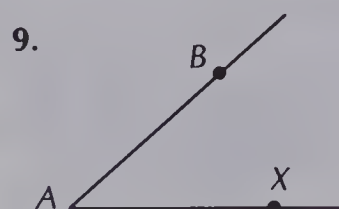
Angle **K** is larger than a right angle.

EXERCISES

What kind of angle is shown? (right angle, smaller than a right angle, or larger than a right angle.)

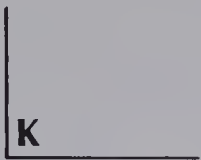
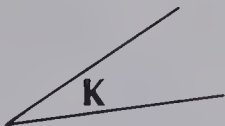

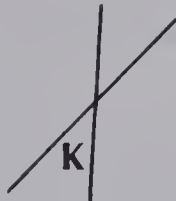
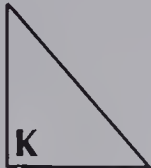
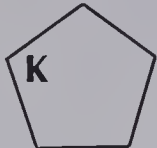
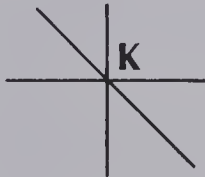



What letter is at the vertex of the angle?

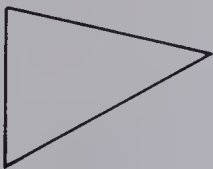
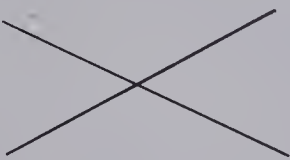

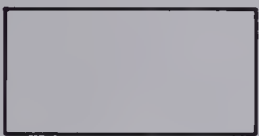
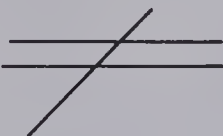
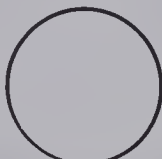


PRACTICE

What kind of angle is angle **K** in each figure?

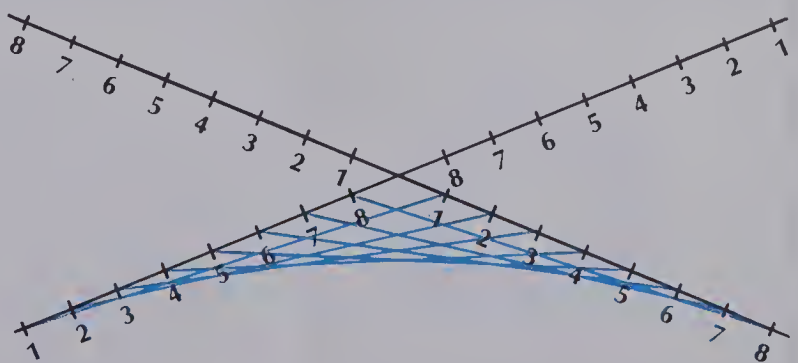
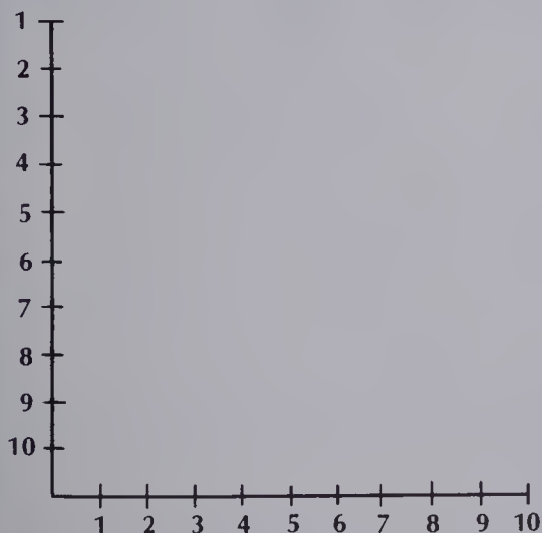
1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 

Copy each figure. Label every angle with a letter.

9. 
10. 
11. 
12. 
13. 
14. 

Line Designs

Copy each model. Use a pencil and ruler to join 1 to 1, 2 to 2, 3 to 3, and so on. What do you notice?

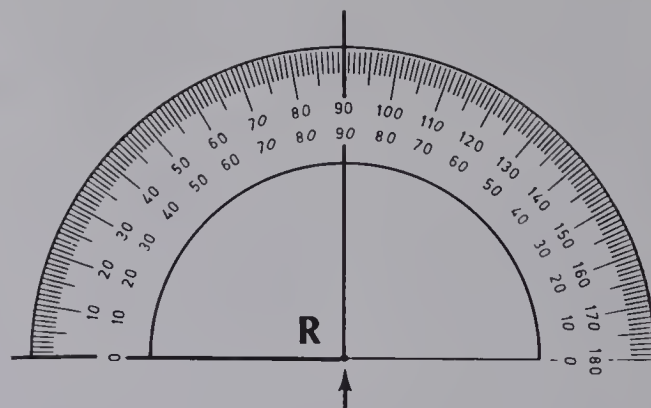


Measuring Angles

A **protractor** is used to measure angles.

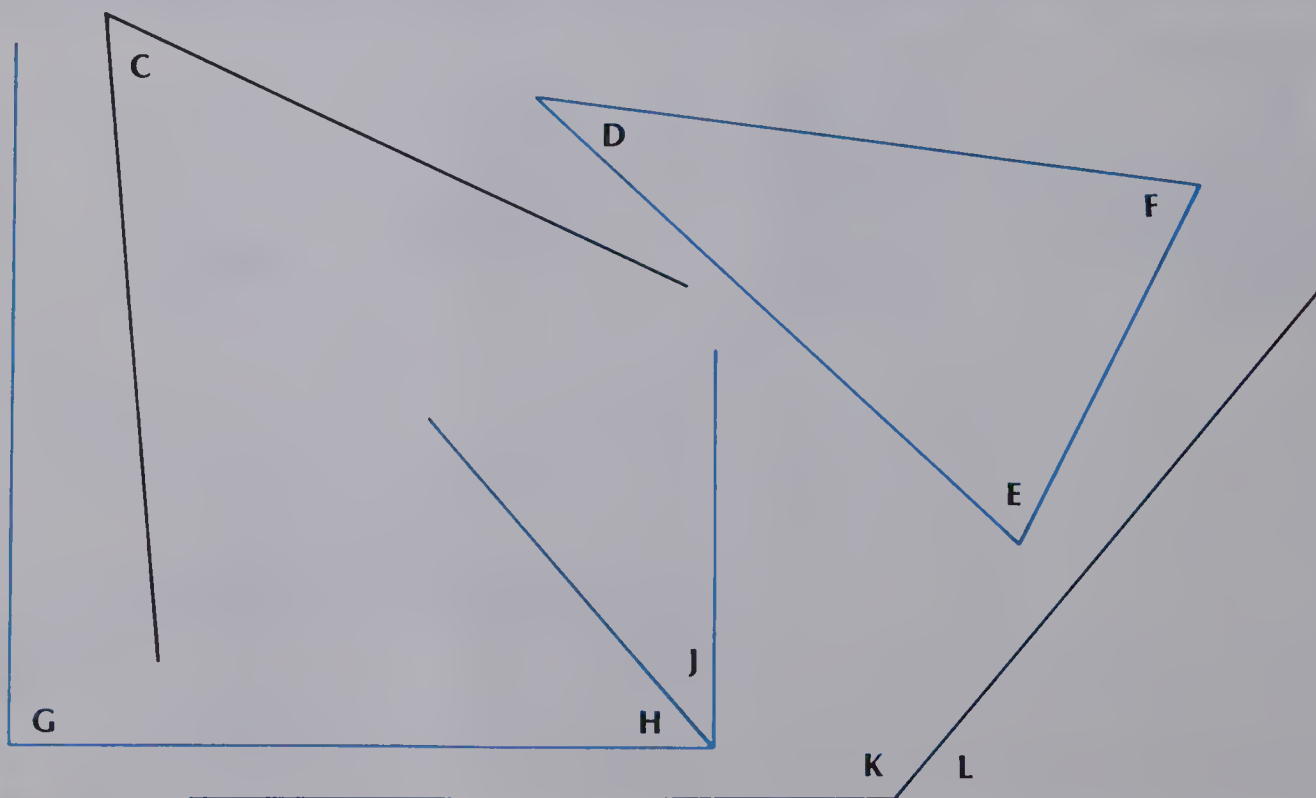
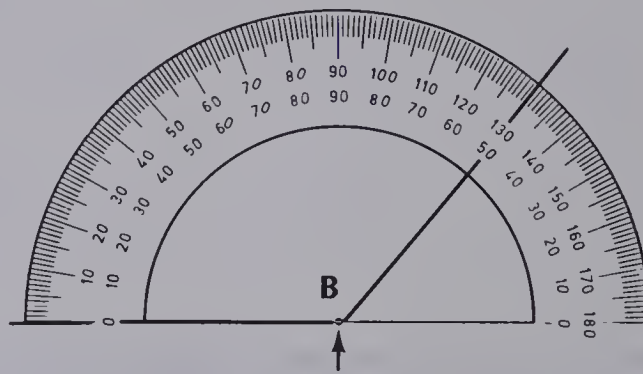
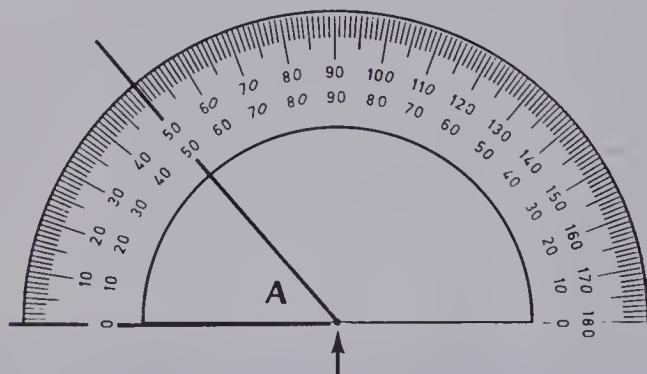
Angle **R** is a right angle.
It measures **90 degrees**.

This is often written as **90°**.



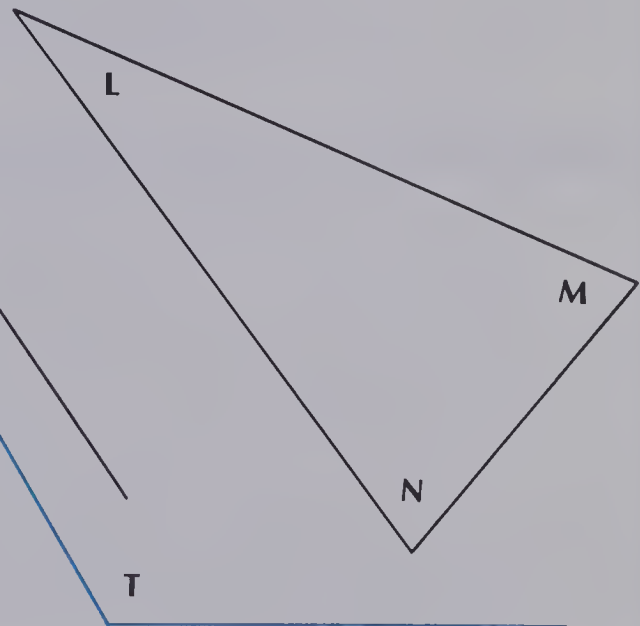
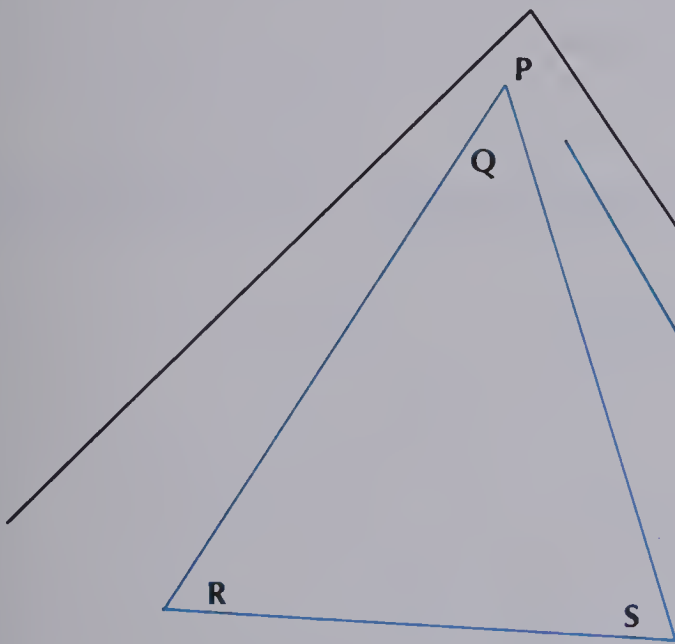
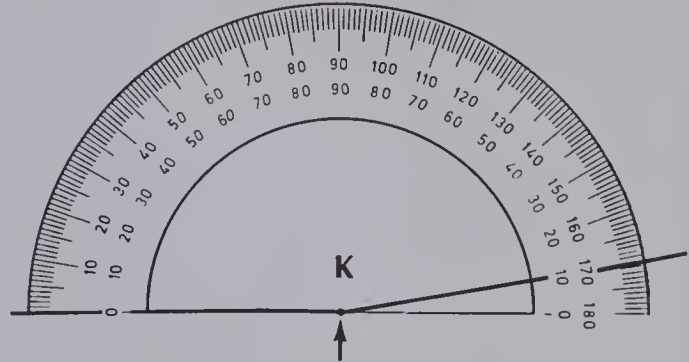
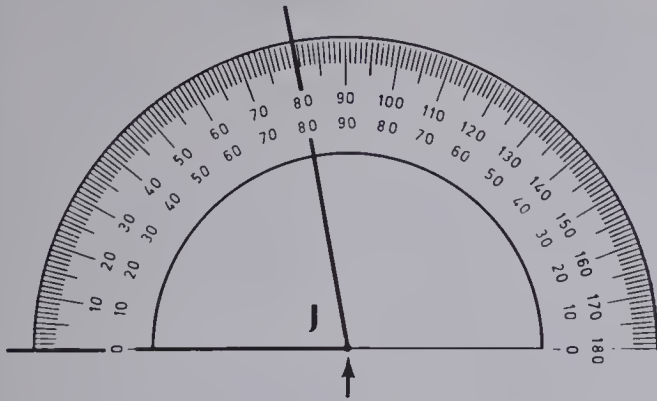
EXERCISES

What is the measure of each angle?



PRACTICE

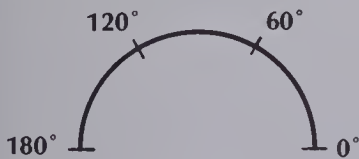
1. What is the measure of each angle?



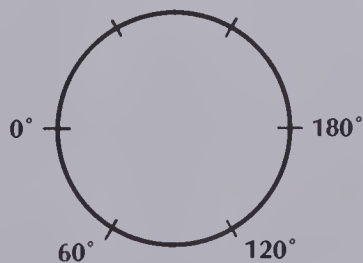
Use a protractor to draw the angle.

2. 90° 3. 45° 4. 135° 5. 5° 6. 170°

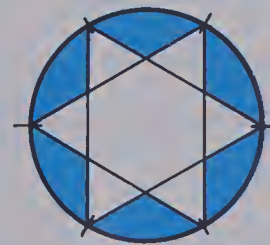
Protractor Design



Make a semicircle.
Put a mark at 0° ,
 60° , 120° , and 180° .

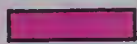


Finish the circle by
making another
semicircle. Put
marks at 60° and 120° .



Connect the marks
with straight lines.
Colour the design.

Problem Solving Quiz



EXERCISES

Choose the operation that will give the correct answer.

1. A truck is loaded with 2 crates that have masses of 4.5 t and 3 t. What is the total mass of the crates?

$4.5 + 3$

$4.5 - 3$

4.5×3

$4.5 \div 3$

2. How many 8 m lengths of extension cord can be cut from a 120 m spool of the cord?

$120 + 8$

$120 - 8$

120×8

$120 \div 8$

3. One angle of a triangle is 102° and another is 51° . What is the difference in sizes?

$102 + 51$

$102 - 51$

102×51

$102 \div 51$

4. What is the area of a rectangular room 4.8 m long and 4 m wide?

$4.8 + 4$

$4.8 - 4$

4.8×4

$4.8 \div 4$

5. Diane drove her car 300 km on Saturday and 150 km on Sunday. How far did she drive in all?

$300 + 150$

$300 - 150$

300×150

$300 \div 150$

6. The gas tank in Bill's car holds 100 L. The tank in Joe's car holds 50 L. How much more does the tank in Bill's car hold?

$100 + 50$

$100 - 50$

100×50

$100 \div 50$

7. A factory uses 4900 m^3 of natural gas per week. How much is that daily, if they operate 7 days a week?

$4900 + 7$

$4900 - 7$

4900×7

$4900 \div 7$

8. During a cold spell, the temperature dropped 20°C in 4 hours. About how much did it drop each hour?

$20 + 4$

$20 - 4$

20×4

$20 \div 4$

PRACTICE

Solve.

1. Mrs. Larson bought a 5 kg roast that cost \$6.25 a kilogram. How much did she pay for the roast?
2. A pilot logged 4348 km one week and 3462 km the next week. How many more kilometres did he log the first week?
3. How much fencing is needed to go around a lot that is 36 m, 28 m, 45 m, and 52 m long on its four sides?
4. A TV shop ordered 8 new sets from a distributor. The bill was \$3720. How much did each set cost the store?

REVIEW

What is the volume of the box?

M8

1. length = 6 cm, width = 9 cm, height = 18 cm
2. length = 5 m, width = 4 m, height = 12 m

Choose the more likely capacity.

M9

3. a thermos bottle: 500 mL or 5 L
4. a kitchen sink: 5 L or 45 L

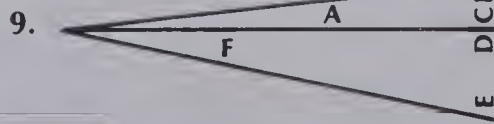
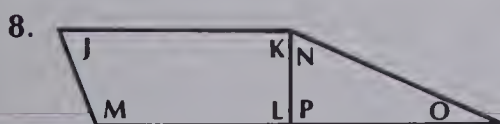
Copy and complete.

M10

5. 3000 kg = ■ t
6. 8 kg = ■ g
7. 1500 kg + 500 kg = ■ t

Name the angles that are right angles.

M11



Use a protractor to draw the angle.

M12

10. 80°
11. 15°
12. 145°
13. 90°

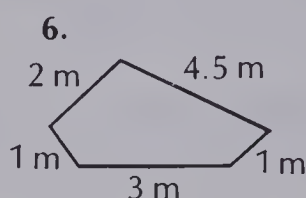
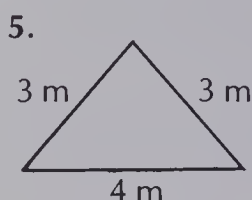
TEST

UNIT 5

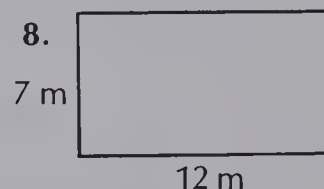
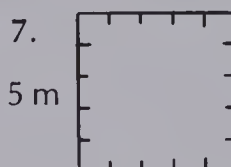
Would *centimetres, metres, millimetres, or kilometres* be used to measure:

1. the length of a pencil
2. the thickness of cardboard
3. the length of a driveway
4. the width of a country

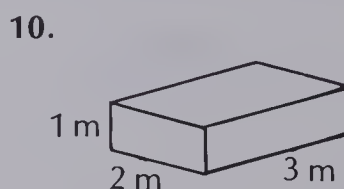
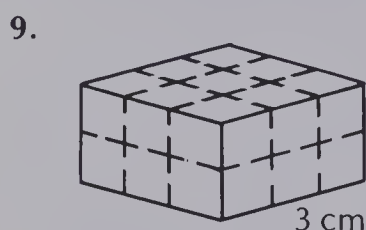
What is the perimeter?



What is the area?



What is the volume?



11. length = 12 cm
width = 15 cm
height = 20 cm

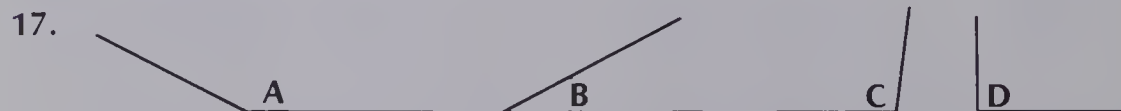
Choose the more likely capacity.

12. a jar of pickles: 900 mL or 9 L 13. a water bucket: 800 mL or 8 L

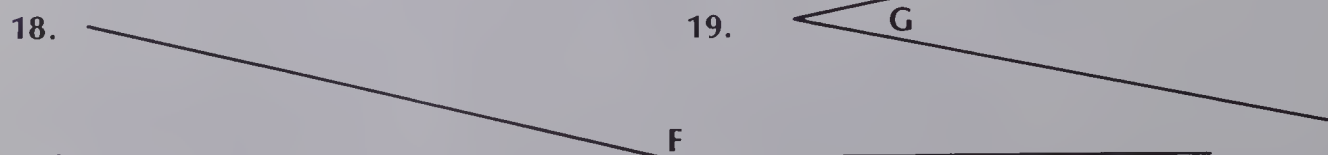
Copy and complete.

14. $1000 \text{ kg} = \blacksquare \text{ t}$ 15. $6 \text{ kg} = \blacksquare \text{ g}$ 16. $4000 \text{ kg} + 2000 \text{ kg} = \blacksquare \text{ t}$

Name the angles that are *more than* a right angle.



Measure each angle.



Solve.

20. What does 1 kg of chicken cost if 3 kg cost \$10.47?

Divide.

1. $7 \overline{)45}$
2. $8 \overline{)30}$
3. $9 \overline{)50}$
4. $6 \overline{)40}$
5. $356 \div 7$
6. $645 \div 8$
7. $254 \div 5$
8. $183 \div 6$
9. $38 \div 2$
10. $57 \div 3$
11. $49 \div 6$
12. $96 \div 4$
13. $286 \div 5$
14. $375 \div 6$
15. $193 \div 4$
16. $755 \div 9$
17. $3 \overline{)716}$
18. $8 \overline{)954}$
19. $2 \overline{)454}$
20. $4 \overline{)571}$
21. $7 \overline{)6475}$
22. $9 \overline{)8916}$
23. $6 \overline{)5318}$
24. $9 \overline{)4248}$
25. $2 \overline{)4673}$
26. $3 \overline{)5758}$
27. $2 \overline{)3574}$
28. $4 \overline{)9175}$
29. $5 \overline{)514}$
30. $4 \overline{)806}$
31. $5 \overline{)4508}$
32. $2 \overline{)6001}$
33. $\$535 \div 5$
34. $\$0.24 \div 2$
35. $\$24.30 \div 6$
36. $\$40.24 \div 8$

Solve.

37. If six handkerchiefs cost \$6.48, what does one cost?
38. There are 8 trays with 48 cookies on each tray.
How many cookies are there in all?
39. A carpenter needs 8 pieces of molding, each 16 cm long.
She has one strip which is 135 cm long.
Does she have enough molding?
40. The same carpenter has 500 nails and 150 screws.
The shelves she is building will need 8 screws each.
She wants to finish two sets of shelves with 8 shelves in each set.
Does she have enough screws?

UNIT 6

MULTIPLICATION & DIVISION



Abacadabra

Find four answers that are the same. Unscramble the letters of these answers to make a word. Find other sets of answers that are the same. Make a word with the letters of each set. Then make a sentence with the words.

$$\begin{array}{r} 259 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 572 \\ - 128 \\ \hline \end{array}$$

$$3 \overline{)1332}$$

$$\begin{array}{r} 438 \\ + 843 \\ \hline \end{array}$$

$$4 \overline{)8288}$$

$$\begin{array}{r} 237 \\ + 207 \\ \hline \end{array}$$

$$6 \overline{)7686}$$

$$\begin{array}{r} 2467 \\ - 395 \\ \hline \end{array}$$

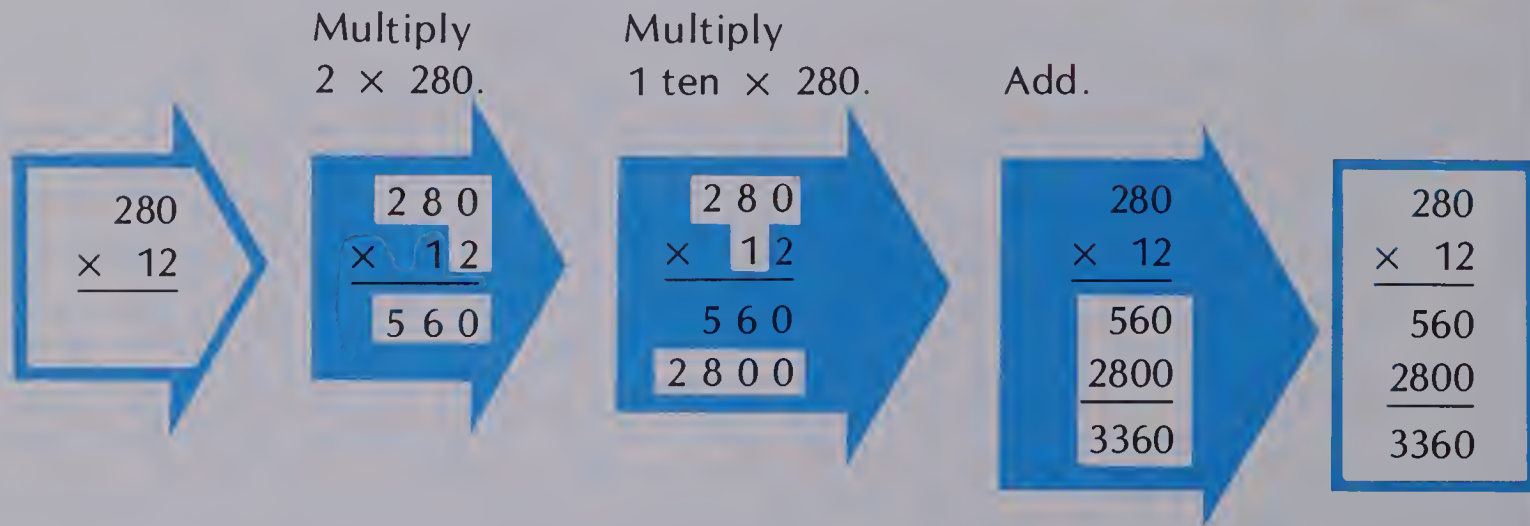
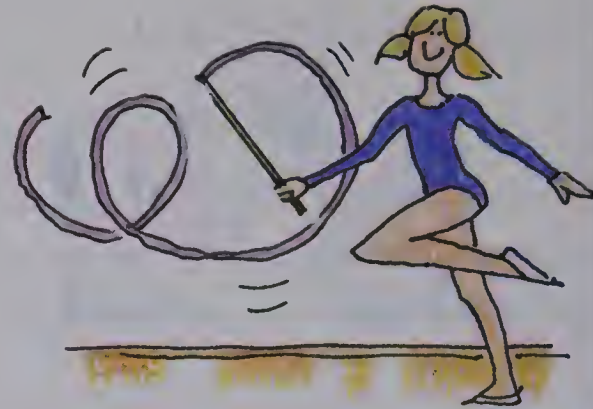
$$\begin{array}{r} 183 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 74 \\ \times 6 \\ \hline \end{array}$$



Multiples of Ten

At a school talent show, 12 gymnasts did a rhythm routine with streamers. Each of the gymnasts had a streamer 280 cm long. How many centimetres of streamers did the team need?



The team needed 3360 cm of streamers.

EXERCISES

Multiply.

1.
$$\begin{array}{r} 600 \\ \times 4 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 600 \\ \times 80 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 610 \\ \times 4 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 610 \\ \times 80 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 610 \\ \times 84 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 200 \\ \times 2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 200 \\ \times 30 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 280 \\ \times 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 280 \\ \times 30 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 280 \\ \times 32 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 700 \\ \times 8 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 700 \\ \times 50 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 730 \\ \times 8 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 730 \\ \times 50 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 730 \\ \times 58 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 190 \\ \times 73 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 420 \\ \times 79 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 810 \\ \times 57 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 980 \\ \times 36 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 550 \\ \times 49 \\ \hline \end{array}$$

PRACTICE

Multiply.

$$\begin{array}{r} 1. \quad 510 \\ \times 25 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 620 \\ \times 63 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 490 \\ \times 47 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 730 \\ \times 85 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 380 \\ \times 91 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 170 \\ \times 87 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 350 \\ \times 96 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 680 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 920 \\ \times 48 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 410 \\ \times 93 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 370 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 290 \\ \times 55 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 950 \\ \times 60 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 640 \\ \times 82 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 580 \\ \times 78 \\ \hline \end{array}$$

$$16. \quad 15 \times 100$$

$$17. \quad 22 \times 300$$

$$18. \quad 50 \times 110$$

$$19. \quad 40 \times 200$$

$$20. \quad 80 \times 700$$

$$21. \quad 20 \times 450$$

Solve.

22. The Grade 5 class made 250 programs for the talent show. The programs cost 15¢ each. What was the total cost of the programs?

23. Robbie needed a cloth to go around a table for his magic act at the talent show. He got a piece 73 cm wide and 240 cm long. How many square centimetres of cloth did he have?

What Comes Next?

Study the pattern. Copy and complete.

- a. 45 mm, 36 mm, 27 mm, ■■■, ■■■, ■■■
- b. 4.4 cm, 4.6 cm, 4.8 cm, ■■■, ■■■, ■■■
- c. 630 m, 618 m, 606 m, ■■■, ■■■, ■■■
- d. 2.2 km, 2.7 km, 3.2 km, ■■■, ■■■, ■■■
- e. 4.02 m, 4.08 m, 4.14 m, ■■■, ■■■, ■■■
- f. 1.5 cm, 1.8 cm, 2.1 cm, ■■■, ■■■, ■■■



Estimating Products

Janet counted 38 children at the roller rink one afternoon. Each child went around the rink about 109 times before the rental time was up. How many laps was that in all? Estimate the answer.



Estimate: **38** rounded to the nearest ten is 40.
 109 rounded to the nearest hundred is 100.
 $40 \times 100 = 4000$

The total number of laps was about 4000.

EXERCISES

What is the product?

- | | | | |
|-------------------|---------------------|--------------------|---------------------|
| 1. 3×400 | 2. 30×400 | 3. 5×500 | 4. 50×500 |
| 5. 6×800 | 6. 60×800 | 7. 9×700 | 8. 90×700 |
| 9. 8×300 | 10. 80×300 | 11. 4×500 | 12. 40×500 |

Round to the nearest ten.

- | | | | | |
|--------|--------|--------|--------|--------|
| 13. 53 | 14. 61 | 15. 78 | 16. 73 | 17. 95 |
|--------|--------|--------|--------|--------|

Round to the nearest hundred.

- | | | | | |
|---------|---------|---------|---------|---------|
| 18. 310 | 19. 408 | 20. 572 | 21. 507 | 22. 895 |
|---------|---------|---------|---------|---------|

Estimate the product.

- | | | | | |
|---|---|---|---|---|
| 23. $\begin{array}{r} 310 \\ \times 53 \\ \hline \end{array}$ | 24. $\begin{array}{r} 408 \\ \times 61 \\ \hline \end{array}$ | 25. $\begin{array}{r} 572 \\ \times 78 \\ \hline \end{array}$ | 26. $\begin{array}{r} 507 \\ \times 73 \\ \hline \end{array}$ | 27. $\begin{array}{r} 895 \\ \times 95 \\ \hline \end{array}$ |
| 28. $\begin{array}{r} 625 \\ \times 88 \\ \hline \end{array}$ | 29. $\begin{array}{r} 799 \\ \times 22 \\ \hline \end{array}$ | 30. $\begin{array}{r} 589 \\ \times 34 \\ \hline \end{array}$ | 31. $\begin{array}{r} 879 \\ \times 49 \\ \hline \end{array}$ | 32. $\begin{array}{r} 293 \\ \times 58 \\ \hline \end{array}$ |
| 33. $\begin{array}{r} 540 \\ \times 28 \\ \hline \end{array}$ | 34. $\begin{array}{r} 886 \\ \times 57 \\ \hline \end{array}$ | 35. $\begin{array}{r} 317 \\ \times 82 \\ \hline \end{array}$ | 36. $\begin{array}{r} 492 \\ \times 31 \\ \hline \end{array}$ | 37. $\begin{array}{r} 741 \\ \times 36 \\ \hline \end{array}$ |

PRACTICE

Round to the nearest ten.

1. 53

2. 85

3. 31

4. 67

5. 98

Round to the nearest hundred.

6. 672

7. 435

8. 705

9. 550

10. 909

Estimate the product.

11.
$$\begin{array}{r} 672 \\ \times 53 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 435 \\ \times 85 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 705 \\ \times 31 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 550 \\ \times 67 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 909 \\ \times 92 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 291 \\ \times 36 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 335 \\ \times 52 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 407 \\ \times 78 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 872 \\ \times 56 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 108 \\ \times 43 \\ \hline \end{array}$$

Estimate the answer.

21. Watkin's Roller Rink rents skates by the hour. They have 120 pairs of skates to rent. Last week they rented all their skates for each of the 28 h they were open. How many hours of skate use was that?
22. Rented skates at Watkin's cost \$1.20 an hour. If 75 people rent skates, how much money will be collected in an hour?

Check Stop

Add the digits in each number.

$$\begin{array}{r} 256 \\ \times 28 \\ \hline \end{array}$$

7168 $2 + 5 + 6 = 13$
 $2 + 8 = 10$
 $7 + 1 + 6 + 8 = 22$

Add the digits again.

$1 + 3 = 4$
 $1 + 0 = 1$
 $2 + 2 = 4$

Multiply these: $4 \times 1 = 4$

Compare. These numbers should be the same.

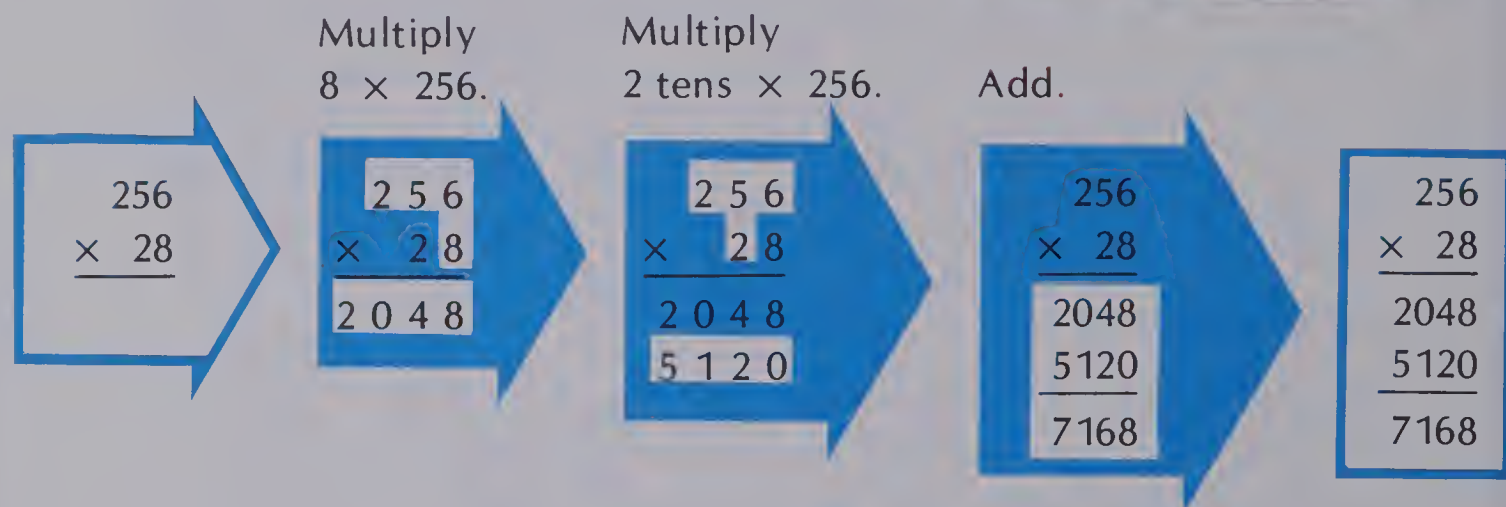
Check your answers to problems 16 to 20 above, using this method.

Note: If the product in the checking process has two digits, add these digits before you compare.

$$\begin{array}{r} 3 \times 4 = 12 \\ 1 + 2 = 3 \end{array}$$

Two-Digit Multipliers

Michael helped his mother make 28 jars of raspberry jam for the Red Lake Fair. Each jar contained 256 mL of jam. How much jam did they make to fill the jars?



They made 7168 mL of jam to fill the jars.

EXERCISES

Multiply.

1. $\begin{array}{r} 321 \\ \times 2 \\ \hline \end{array}$

2. $\begin{array}{r} 321 \\ \times 40 \\ \hline \end{array}$

3. $\begin{array}{r} 321 \\ \times 42 \\ \hline \end{array}$

4. $\begin{array}{r} 429 \\ \times 3 \\ \hline \end{array}$

5. $\begin{array}{r} 429 \\ \times 20 \\ \hline \end{array}$

6. $\begin{array}{r} 429 \\ \times 23 \\ \hline \end{array}$

7. $\begin{array}{r} 692 \\ \times 7 \\ \hline \end{array}$

8. $\begin{array}{r} 692 \\ \times 10 \\ \hline \end{array}$

9. $\begin{array}{r} 692 \\ \times 17 \\ \hline \end{array}$

10. $\begin{array}{r} 185 \\ \times 4 \\ \hline \end{array}$

11. $\begin{array}{r} 185 \\ \times 80 \\ \hline \end{array}$

12. $\begin{array}{r} 185 \\ \times 84 \\ \hline \end{array}$

13. $\begin{array}{r} 573 \\ \times 6 \\ \hline \end{array}$

14. $\begin{array}{r} 573 \\ \times 90 \\ \hline \end{array}$

15. $\begin{array}{r} 573 \\ \times 96 \\ \hline \end{array}$

16. $\begin{array}{r} 268 \\ \times 45 \\ \hline \end{array}$

17. $\begin{array}{r} 917 \\ \times 27 \\ \hline \end{array}$

18. $\begin{array}{r} 182 \\ \times 63 \\ \hline \end{array}$

19. $\begin{array}{r} 704 \\ \times 92 \\ \hline \end{array}$

20. $\begin{array}{r} 850 \\ \times 58 \\ \hline \end{array}$

PRACTICE

Find the product.

$$\begin{array}{r} 1. \quad 213 \\ \times 32 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 402 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 512 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 620 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 422 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 137 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 326 \\ \times 33 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 415 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 524 \\ \times 34 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 213 \\ \times 45 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 154 \\ \times 34 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 267 \\ \times 23 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 364 \\ \times 45 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 453 \\ \times 64 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 545 \\ \times 46 \\ \hline \end{array}$$

$$16. \quad 54 \times 548$$

$$17. \quad 67 \times 763$$

$$18. \quad 84 \times 869$$

Solve. Check your answers by estimation.

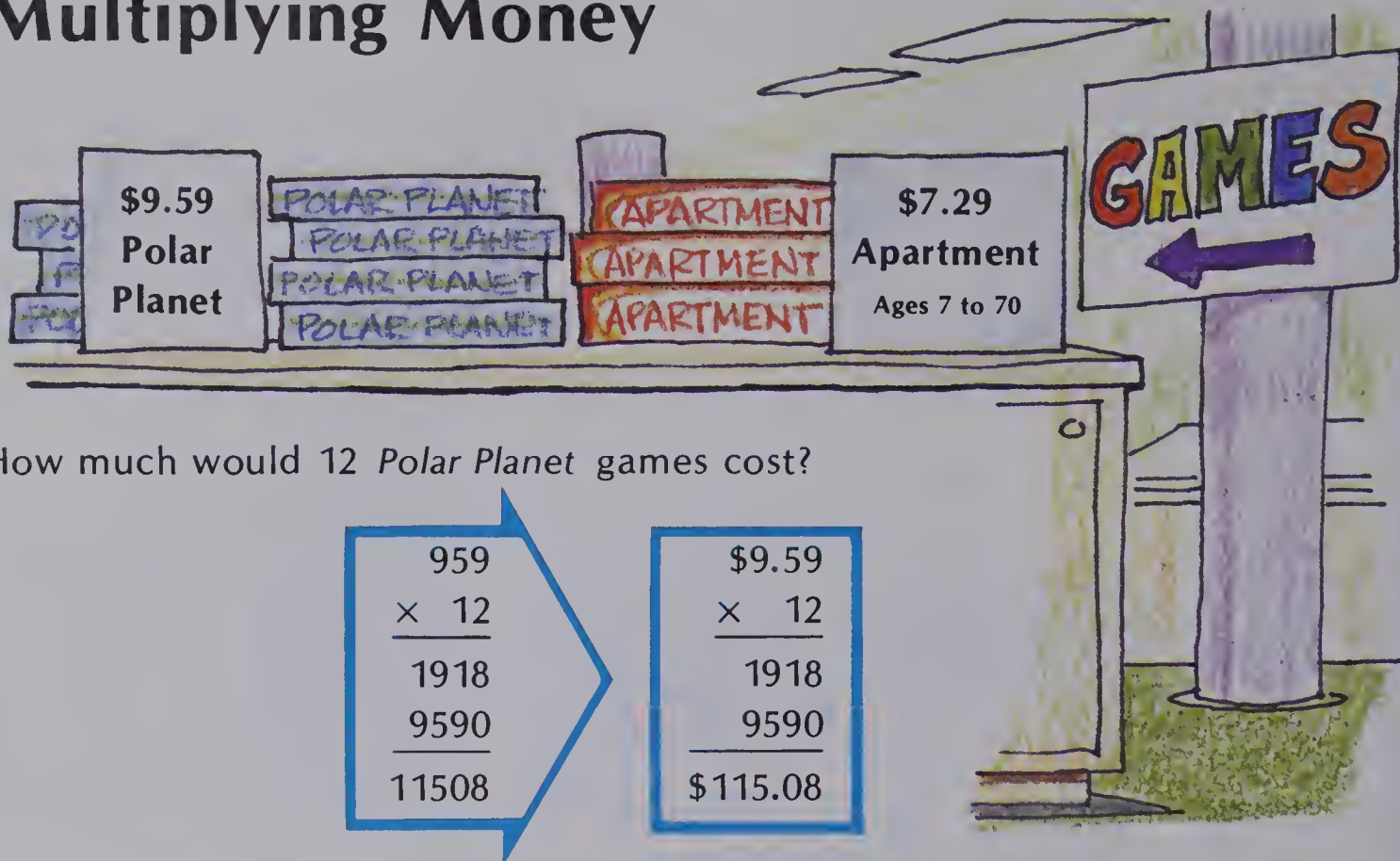
19. Apple cider was sold in 175 mL cups. If Lori sold 65 cups, how much cider did she sell?
20. A refreshment stand at the fair ordered 125 boxes of donuts. There were a dozen donuts in each box. How many donuts did they order?
21. A Fiddling Contest was watched by 345 people who paid 75¢ to sit in the grandstand. What was the total amount paid?

Fruit Basket

The fruit stand at the fair sells apples for 20¢ each, oranges for 30¢ each, and pears for 25¢ each. List the different ways that you can spend exactly \$1 for fruit.



Multiplying Money



How much would 12 *Polar Planet* games cost?

$$\begin{array}{r} 959 \\ \times 12 \\ \hline 1918 \\ 9590 \\ \hline 11508 \end{array}$$

$$\begin{array}{r} \$9.59 \\ \times 12 \\ \hline 1918 \\ 9590 \\ \hline \$115.08 \end{array}$$

Twelve *Polar Planet* games would cost \$115.08.

EXERCISES

Multiply.

1. $\begin{array}{r} 145 \\ \times 3 \\ \hline \end{array}$

2. $\begin{array}{r} \$1.45 \\ \times 3 \\ \hline \end{array}$

3. $\begin{array}{r} 256 \\ \times 5 \\ \hline \end{array}$

4. $\begin{array}{r} \$2.56 \\ \times 5 \\ \hline \end{array}$

5. $\begin{array}{r} \$7.27 \\ \times 6 \\ \hline \end{array}$

6. $\begin{array}{r} 273 \\ \times 30 \\ \hline \end{array}$

7. $\begin{array}{r} \$2.73 \\ \times 30 \\ \hline \end{array}$

8. $\begin{array}{r} 963 \\ \times 40 \\ \hline \end{array}$

9. $\begin{array}{r} \$9.63 \\ \times 40 \\ \hline \end{array}$

10. $\begin{array}{r} \$8.42 \\ \times 50 \\ \hline \end{array}$

11. $\begin{array}{r} 195 \\ \times 47 \\ \hline \end{array}$

12. $\begin{array}{r} \$1.95 \\ \times 47 \\ \hline \end{array}$

13. $\begin{array}{r} 308 \\ \times 91 \\ \hline \end{array}$

14. $\begin{array}{r} \$3.08 \\ \times 91 \\ \hline \end{array}$

15. $\begin{array}{r} \$7.50 \\ \times 83 \\ \hline \end{array}$

16. $\begin{array}{r} \$4.83 \\ \times 25 \\ \hline \end{array}$

17. $\begin{array}{r} \$5.06 \\ \times 30 \\ \hline \end{array}$

18. $\begin{array}{r} \$9.24 \\ \times 50 \\ \hline \end{array}$

19. $\begin{array}{r} \$7.84 \\ \times 17 \\ \hline \end{array}$

20. $\begin{array}{r} \$8.09 \\ \times 33 \\ \hline \end{array}$

21. $\begin{array}{r} \$5.74 \\ \times 17 \\ \hline \end{array}$

22. $\begin{array}{r} \$6.23 \\ \times 43 \\ \hline \end{array}$

23. $\begin{array}{r} \$3.57 \\ \times 65 \\ \hline \end{array}$

24. $\begin{array}{r} \$4.64 \\ \times 28 \\ \hline \end{array}$

25. $\begin{array}{r} \$8.17 \\ \times 89 \\ \hline \end{array}$

PRACTICE

Multiply.

- | | | | | |
|--|--|--|--|--|
| 1. $\begin{array}{r} \$0.55 \\ \times \quad 4 \\ \hline \end{array}$ | 2. $\begin{array}{r} \$0.63 \\ \times \quad 6 \\ \hline \end{array}$ | 3. $\begin{array}{r} \$0.45 \\ \times \quad 10 \\ \hline \end{array}$ | 4. $\begin{array}{r} \$0.78 \\ \times \quad 10 \\ \hline \end{array}$ | 5. $\begin{array}{r} \$1.35 \\ \times \quad 10 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} \$4.25 \\ \times \quad 20 \\ \hline \end{array}$ | 7. $\begin{array}{r} \$5.77 \\ \times \quad 24 \\ \hline \end{array}$ | 8. $\begin{array}{r} \$6.79 \\ \times \quad 30 \\ \hline \end{array}$ | 9. $\begin{array}{r} \$8.45 \\ \times \quad 33 \\ \hline \end{array}$ | 10. $\begin{array}{r} \$6.82 \\ \times \quad 50 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} \$9.32 \\ \times \quad 70 \\ \hline \end{array}$ | 12. $\begin{array}{r} \$8.47 \\ \times \quad 77 \\ \hline \end{array}$ | 13. $\begin{array}{r} \$9.32 \\ \times \quad 35 \\ \hline \end{array}$ | 14. $\begin{array}{r} \$4.82 \\ \times \quad 51 \\ \hline \end{array}$ | 15. $\begin{array}{r} \$7.13 \\ \times \quad 25 \\ \hline \end{array}$ |

Solve.

- | | |
|---|---|
| 16. One <i>Apartment</i> game costs \$7.29. How much would 20 of them cost? | 17. The West Side Recreation Club bought 3 dart games. Each game cost \$15.32. What was the total cost? |
|---|---|

REVIEW

Multiply.

- | | | | |
|--|--|--|--|
| A26 1. $\begin{array}{r} 230 \\ \times \quad 65 \\ \hline \end{array}$ | 2. $\begin{array}{r} 480 \\ \times \quad 37 \\ \hline \end{array}$ | 3. $\begin{array}{r} 810 \\ \times \quad 46 \\ \hline \end{array}$ | 4. $\begin{array}{r} 650 \\ \times \quad 73 \\ \hline \end{array}$ |
|--|--|--|--|

Estimate the product.

- | | | | |
|--|--|--|--|
| A27 5. $\begin{array}{r} 320 \\ \times \quad 51 \\ \hline \end{array}$ | 6. $\begin{array}{r} 804 \\ \times \quad 49 \\ \hline \end{array}$ | 7. $\begin{array}{r} 688 \\ \times \quad 33 \\ \hline \end{array}$ | 8. $\begin{array}{r} 592 \\ \times \quad 67 \\ \hline \end{array}$ |
|--|--|--|--|

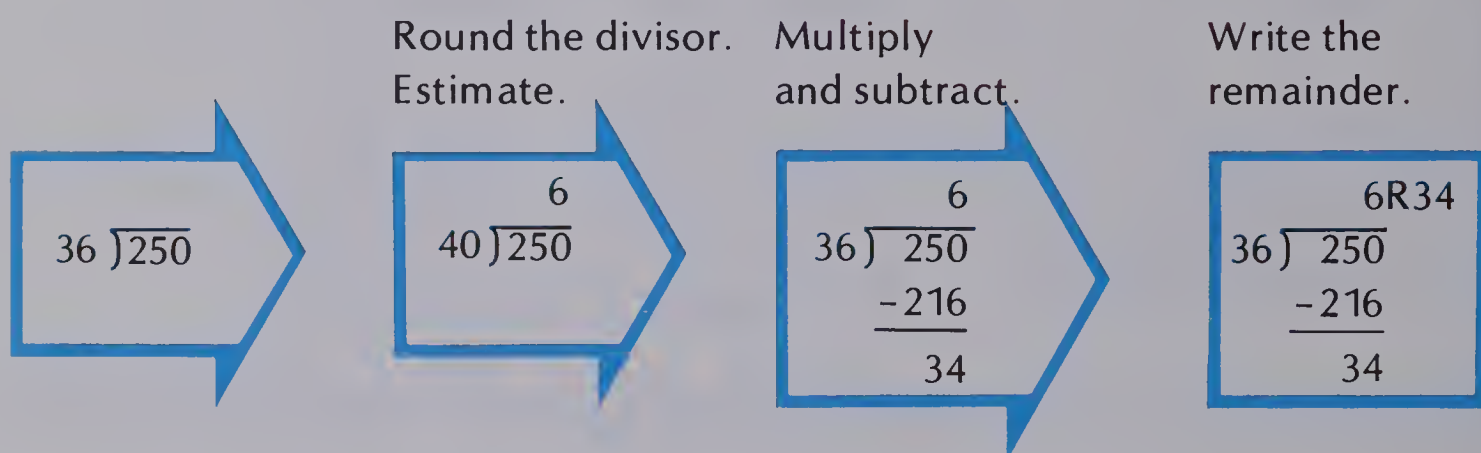
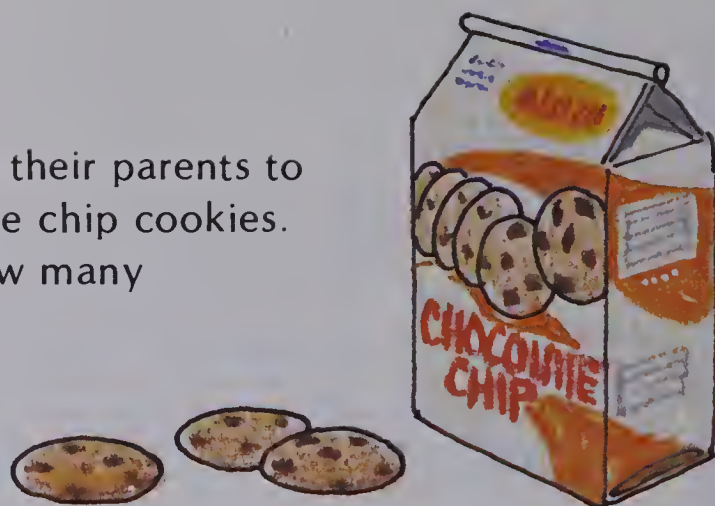
Multiply.

- | | | | |
|--|---|---|---|
| A28 9. $\begin{array}{r} 267 \\ \times \quad 43 \\ \hline \end{array}$ | 10. $\begin{array}{r} 816 \\ \times \quad 28 \\ \hline \end{array}$ | 11. $\begin{array}{r} 193 \\ \times \quad 74 \\ \hline \end{array}$ | 12. $\begin{array}{r} 950 \\ \times \quad 53 \\ \hline \end{array}$ |
|--|---|---|---|

- | | | | |
|---|---|--|--|
| M13 13. $\begin{array}{r} \$2.32 \\ \times \quad 3 \\ \hline \end{array}$ | 14. $\begin{array}{r} \$6.40 \\ \times \quad 8 \\ \hline \end{array}$ | 15. $\begin{array}{r} \$4.18 \\ \times \quad 27 \\ \hline \end{array}$ | 16. $\begin{array}{r} \$5.97 \\ \times \quad 74 \\ \hline \end{array}$ |
|---|---|--|--|

Two-Digit Divisors

The students at Leger School are inviting their parents to a party. They want to order 250 chocolate chip cookies. The cookies come in packages of 36. How many packages should they order?



They need 6 packages and 34 cookies more. They should order 7 packages.

EXERCISES

Divide.

- | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. $3 \overline{)6}$ | 2. $30 \overline{)60}$ | 3. $30 \overline{)63}$ | 4. $29 \overline{)60}$ | 5. $29 \overline{)63}$ |
| 6. $2 \overline{)8}$ | 7. $20 \overline{)80}$ | 8. $20 \overline{)85}$ | 9. $20 \overline{)98}$ | 10. $23 \overline{)98}$ |
| 11. $2 \overline{)14}$ | 12. $20 \overline{)140}$ | 13. $18 \overline{)140}$ | 14. $18 \overline{)137}$ | 15. $22 \overline{)155}$ |
| 16. $3 \overline{)21}$ | 17. $30 \overline{)210}$ | 18. $30 \overline{)220}$ | 19. $31 \overline{)220}$ | 20. $31 \overline{)229}$ |
| 21. $4 \overline{)28}$ | 22. $40 \overline{)280}$ | 23. $40 \overline{)300}$ | 24. $42 \overline{)300}$ | 25. $43 \overline{)320}$ |
| 26. $35 \overline{)335}$ | 27. $27 \overline{)247}$ | 28. $53 \overline{)366}$ | 29. $71 \overline{)623}$ | 30. $47 \overline{)286}$ |

PRACTICE

Divide. Check your answer.

- | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. $21 \overline{)84}$ | 2. $19 \overline{)65}$ | 3. $42 \overline{)93}$ | 4. $37 \overline{)81}$ |
| 5. $22 \overline{)136}$ | 6. $18 \overline{)163}$ | 7. $37 \overline{)162}$ | 8. $52 \overline{)421}$ |
| 9. $77 \overline{)641}$ | 10. $90 \overline{)462}$ | 11. $33 \overline{)234}$ | 12. $58 \overline{)542}$ |
| 13. $91 \overline{)497}$ | 14. $39 \overline{)281}$ | 15. $62 \overline{)189}$ | 16. $27 \overline{)241}$ |

Solve.

17. Some students plan to display their art work in the school corridor. Each picture is 92 cm wide. How many pictures can they put in a row on a wall space 840 cm wide?
18. Lori is practising a speech for 25 min each day. She plans to practise for a total of 150 min. How many days will she practise?
19. A can of coffee costs \$4.86. It will make 81 cups. How many cents will each cup cost?
20. Each jug of juice costs \$1.54. If 22 servings can be obtained from the jug, how many cents will each serving cost?

Number Riddle

I am a three-digit number.
 Every even number less than 10
 is a divisor of me.
 The first odd number greater
 than 10 is a divisor of me.
 Who am I?

264 756
 178 421
 392 524 462
 811

NINE HUNDRED SEVENTY-THREE

Two-Digit Divisors



The 110 members of the Diefenbaker Drum and Bugle Corps and the Michener School Band marched together in a parade. They made up 18 rows. How many marchers were in each row?

Round the divisor. Estimate.

$$18 \overline{)100}$$

$$20 \overline{)110} \quad 5$$

5

$$18 \overline{)110}$$

$$\begin{array}{r} - 90 \\ \hline 20 \end{array}$$

larger than the divisor

The quotient 5 is too small. Try 6.

$$18 \overline{)110}$$

$$\begin{array}{r} - 108 \\ \hline 2 \end{array}$$

6

Write the remainder.

$$18 \overline{)110} \quad 6R2$$

$$\begin{array}{r} - 108 \\ \hline 2 \end{array}$$

Check:

$$\begin{array}{r} 18 \\ \times 6 \\ \hline 108 \\ + 2 \\ \hline 110 \end{array}$$

There were 6 marchers in each row, with 2 extra marchers.

EXERCISES

Tell what is wrong with the first division.

Complete the second division.

$$1. \quad \begin{array}{r} 3 \\ 23 \overline{)63} \\ - 69 \\ \hline \end{array}$$

$$\begin{array}{r} 2R\blacksquare\blacksquare \\ 23 \overline{)63} \\ - \blacksquare\blacksquare \\ \hline \blacksquare\blacksquare \end{array}$$

$$2. \quad \begin{array}{r} 6 \\ 27 \overline{)193} \\ - 162 \\ \hline 31 \end{array}$$

$$\begin{array}{r} 7R\blacksquare \\ 27 \overline{)193} \\ - \blacksquare\blacksquare\blacksquare \\ \hline \blacksquare \end{array}$$

$$3. \quad \begin{array}{r} 4 \\ 16 \overline{)82} \\ - 64 \\ \hline 18 \end{array}$$

$$\begin{array}{r} 5R\blacksquare \\ 16 \overline{)82} \\ - \blacksquare\blacksquare \\ \hline \blacksquare \end{array}$$

$$4. \quad \begin{array}{r} 9 \\ 62 \overline{)551} \\ - 558 \\ \hline \end{array}$$

$$\begin{array}{r} 8R\blacksquare\blacksquare \\ 62 \overline{)551} \\ - \blacksquare\blacksquare\blacksquare \\ \hline \blacksquare\blacksquare \end{array}$$

Divide.

$$5. \quad 24 \overline{)84}$$

$$6. \quad 36 \overline{)74}$$

$$7. \quad 23 \overline{)182}$$

$$8. \quad 78 \overline{)471}$$

PRACTICE

Divide. Check your answer.

1. $42 \overline{)81}$

2. $27 \overline{)58}$

3. $18 \overline{)75}$

4. $23 \overline{)71}$

5. $54 \overline{)207}$

6. $66 \overline{)358}$

7. $17 \overline{)146}$

8. $94 \overline{)422}$

9. $83 \overline{)721}$

10. $36 \overline{)327}$

11. $19 \overline{)167}$

12. $43 \overline{)360}$

For each checking statement, write the corresponding division.

13. $7 \times 24 + 5 = 173$

14. $5 \times 67 + 10 = 345$

15. $8 \times 53 + 24 = 448$

16. $9 \times 78 + 51 = 753$

Solve.

17. The 245 members of the Jubilee Choir stood in rows when they performed. There were 35 singers in each row. How many rows were there?

18. The 28 members of the choir at Milton School went to hear the Jubilee Choir. The total cost of the tickets was \$140. How much was each ticket?

19. Eighteen members of the band at Pearson School needed new belts for their uniforms. The cost was \$126. How much did each belt cost?

Digit Decode

Each different symbol stands for a different digit. What are the missing digits?

$$\begin{array}{r} \bullet \\ 2\bullet \overline{)1\blacksquare\bullet} \\ -1\blacksquare\bullet \\ \hline 0 \end{array}$$

$$\begin{array}{r} \blacksquare \\ 1\blacksquare \overline{)7\blacksquare} \\ -7\blacksquare \\ \hline 0 \end{array}$$

$$\begin{array}{r} \star R1 \\ \star 2 \overline{)1\bullet 9} \\ -1\bullet 8 \\ \hline 1 \end{array}$$



Dividing by Multiples of Ten

Rita interviewed an actor of a play she had seen. She learned that the actors had practised the play for 2880 min. How many hours is that?



Estimate.

$$60 \times 40 = 2400$$

Multiply

and subtract.

Remember

the ones.

Estimate, multiply,

and subtract.

$$\begin{array}{r} 4 \\ 60 \overline{) 2880} \end{array}$$

$$\begin{array}{r} 4 \\ 60 \overline{) 2880} \\ - 240 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 4 \\ 60 \overline{) 2880} \\ - 240 \downarrow \\ \hline 480 \end{array}$$

$$\begin{array}{r} 48 \\ 60 \overline{) 2880} \\ - 240 \\ \hline 480 \\ - 480 \\ \hline 0 \end{array}$$

The actors practised the play for 48 h.

EXERCISES

Copy and complete the division.

$$\begin{array}{r} 28 \\ 10 \overline{) 280} \\ - 20 \\ \hline \square 0 \\ - \square \square \\ \hline \square \end{array}$$

$$\begin{array}{r} 1 \square R \square \\ 30 \overline{) 422} \\ - 30 \\ \hline \square \square 2 \\ - \square \square \square \\ \hline \square \end{array}$$

$$\begin{array}{r} 1 \square \\ 50 \overline{) 650} \\ - \square \square \\ \hline \square \square 0 \\ - \square \square \square \\ \hline \square \end{array}$$

$$\begin{array}{r} \square \square R \square \\ 20 \overline{) 683} \\ - \square \square \\ \hline 83 \\ - \square \square \\ \hline \square \end{array}$$

$$\begin{array}{r} 64 R \square \\ 70 \overline{) 4485} \\ - 420 \\ \hline \square \square 5 \end{array}$$

$$\begin{array}{r} 8 \square \\ 40 \overline{) 3440} \\ - 320 \\ \hline \square \square 0 \end{array}$$

$$\begin{array}{r} 5 \square R \square \\ 90 \overline{) 4776} \\ - \square \square \square \\ \hline \square \square 6 \end{array}$$

$$\begin{array}{r} \square \square R \square \\ 80 \overline{) 4643} \\ - \square \square \square \\ \hline 643 \end{array}$$

$$9. \quad 10 \overline{) 570}$$

$$10. \quad 20 \overline{) 267}$$

$$11. \quad 40 \overline{) 963}$$

$$12. \quad 30 \overline{) 695}$$

$$13. \quad 60 \overline{) 3124}$$

$$14. \quad 40 \overline{) 3240}$$

$$15. \quad 70 \overline{) 6517}$$

$$16. \quad 80 \overline{) 6969}$$

PRACTICE

Divide. Check your answer.

1. $20 \overline{)640}$
2. $30 \overline{)577}$
3. $40 \overline{)920}$
4. $50 \overline{)705}$
5. $40 \overline{)3282}$
6. $60 \overline{)3783}$
7. $90 \overline{)2435}$
8. $80 \overline{)3920}$
9. $50 \overline{)2971}$
10. $30 \overline{)2554}$
11. $70 \overline{)3920}$
12. $60 \overline{)5048}$
13. $40 \overline{)2541}$
14. $80 \overline{)5732}$
15. $50 \overline{)4189}$
16. $90 \overline{)7426}$

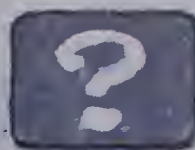
Solve.

17. The backdrop for the Loose Ties musical group uses 40 W (watt) bulbs. The total number of watts from the backdrop is 1640. How many bulbs are in it?
18. On Friday the box office sold 90 tickets for a coming rock concert. It took in \$1260 for these tickets. How much did each ticket cost?
19. 748 young people came to the concert on special buses. There were about 40 young people on each bus. How many buses were there?

USING THE CALCULATOR

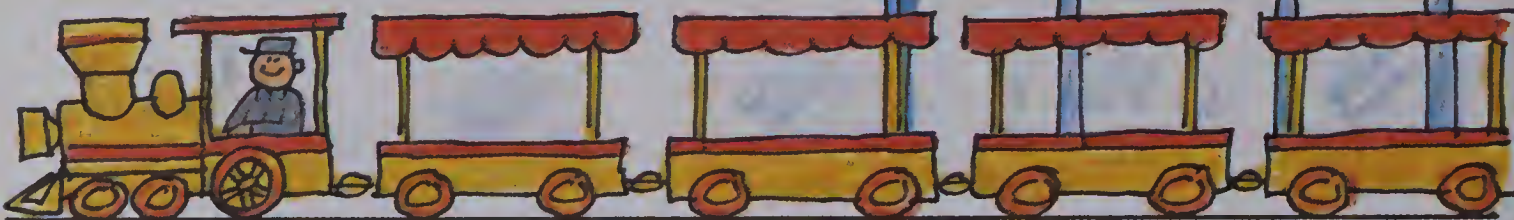
Use a calculator to do several problems. Look for a pattern. Then do as many problems as you can without using the calculator. Use it to check your answers.

$3000 \div 10$	$3000 \div 100$	$3000 \div 1000$
$52\,000 \div 10$	$52\,000 \div 100$	$52\,000 \div 1000$
$618\,000 \div 10$	$618\,000 \div 100$	$618\,000 \div 1000$
$9000 \div 10$	$9000 \div 100$	$9000 \div 1000$
$327\,000 \div 10$	$327\,000 \div 100$	$327\,000 \div 1000$



Two-Digit Divisors

Tony counted 12 cars on the mini-train at the zoo. The guide said the train carries 372 people. How many people does each car seat?



$$372 \div 12 = ?$$

Round the divisor.
Estimate.

$$\begin{array}{r} 3 \\ 10 \overline{)372} \end{array}$$

Multiply
and subtract.

$$\begin{array}{r} 3 \\ 12 \overline{)372} \\ \underline{-36} \\ 1 \end{array}$$

Remember
the ones.

$$\begin{array}{r} 3 \\ 12 \overline{)372} \\ \underline{-36} \downarrow \\ 12 \end{array}$$

Estimate,
multiply,
and subtract.

$$\begin{array}{r} 31 \\ 12 \overline{)372} \\ \underline{-36} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

Each car seats 31 people.

EXERCISES

Divide.

1. $20 \overline{)400}$

2. $21 \overline{)441}$

3. $20 \overline{)250}$

4. $19 \overline{)247}$

5. $30 \overline{)830}$

6. $32 \overline{)832}$

7. $50 \overline{)580}$

8. $45 \overline{)585}$

9. $50 \overline{)1600}$

10. $51 \overline{)1632}$

11. $40 \overline{)2500}$

12. $38 \overline{)2470}$

13. $60 \overline{)4200}$

14. $57 \overline{)4218}$

15. $60 \overline{)2600}$

16. $62 \overline{)2604}$

17. $29 \overline{)2440}$

18. $38 \overline{)2058}$

19. $49 \overline{)2568}$

20. $42 \overline{)2656}$

PRACTICE

Find the quotient.

1. $80 \overline{)7315}$

2. $90 \overline{)4621}$

3. $62 \overline{)1894}$

4. $21 \overline{)1360}$

5. $71 \overline{)5023}$

6. $33 \overline{)2345}$

7. $27 \overline{)2419}$

8. $19 \overline{)1638}$

9. $37 \overline{)1624}$

10. $58 \overline{)5421}$

11. $41 \overline{)2152}$

12. $82 \overline{)4125}$

13. $59 \overline{)3140}$

14. $91 \overline{)4976}$

15. $77 \overline{)6413}$

16. $39 \overline{)2819}$

For each checking statement, write a corresponding division.

17. $91 \times 32 + 13 = 2925$

18. $59 \times 41 + 7 = 2426$

19. $19 \times 53 + 8 = 1015$

20. $22 \times 78 + 26 = 1742$

Solve.

21. The zoo ordered 373 kg of bird seed. This amount lasts 21 days. About how much bird seed do they use each day?

22. The zoo was open 31 days last month for a total of 341 h. How many hours was it open each day?

Short Cuts

To multiply by 25:

Multiply by 100. Divide by 4.

$$25 \times 64 = 6400 \div 4 = 1600$$

To multiply by 50:

Multiply by 100. Divide by 2.

$$50 \times 22 = 2200 \div 2 = 1100$$

Try these:

a. 25×32

b. 25×120

c. 25×16

d. 50×48

e. 50×56

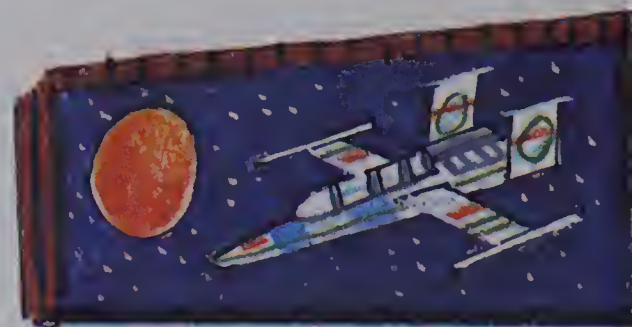
f. 50×114

g. Explain why these short cuts work.



Two-Digit Divisors

About 94 children attended each showing of the movie, *Hello Mars!* A total of 2726 children saw it. How many showings of the movie were there?



Round the divisor.

Estimate.

Try 2.

$$\begin{array}{r} 3 \\ 90 \overline{) 2726} \end{array}$$

$$\begin{array}{r} 3 \\ 94 \overline{) 2726} \\ \underline{-282} \\ \text{too large;} \\ \text{can't subtract} \end{array}$$

$$\begin{array}{r} 2 \\ 94 \overline{) 2726} \\ \underline{-188} \\ 84 \end{array}$$

$$\begin{array}{r} 29 \\ 94 \overline{) 2726} \\ \underline{-188} \\ 846 \\ \underline{-846} \\ 0 \end{array}$$

There were 29 showings of the movie.

EXERCISES

Tell what is wrong with the first division. Complete the second division.

$$\begin{array}{r} 8 \\ 37 \overline{) 3367} \\ \underline{-296} \\ 40 \end{array}$$

$$\begin{array}{r} 9\blacksquare \\ 37 \overline{) 3367} \\ \underline{-\blacksquare\blacksquare\blacksquare} \\ \blacksquare 7 \\ \underline{-\blacksquare\blacksquare} \\ \blacksquare \end{array}$$

$$\begin{array}{r} 5 \\ 53 \overline{) 2505} \\ \underline{-265} \end{array}$$

$$\begin{array}{r} 4\blacksquare R\blacksquare\blacksquare \\ 53 \overline{) 2505} \\ \underline{-\blacksquare\blacksquare\blacksquare} \\ \blacksquare\blacksquare 5 \\ \underline{-\blacksquare\blacksquare\blacksquare} \\ \blacksquare\blacksquare \end{array}$$

$$\begin{array}{r} 6 \\ 74 \overline{) 4292} \\ \underline{-444} \end{array}$$

$$74 \overline{) 4292}$$

$$\begin{array}{r} 5 \\ 46 \overline{) 2852} \\ \underline{-230} \\ 55 \end{array}$$

$$46 \overline{) 2852}$$

Divide.

$$5. \quad 42 \overline{) 578}$$

$$6. \quad 23 \overline{) 864}$$

$$7. \quad 17 \overline{) 689}$$

$$8. \quad 28 \overline{) 141}$$

$$9. \quad 33 \overline{) 1216}$$

$$10. \quad 56 \overline{) 2250}$$

$$11. \quad 62 \overline{) 4252}$$

$$12. \quad 74 \overline{) 5933}$$

PRACTICE

Find the quotient.

1. $15 \overline{)260}$

2. $18 \overline{)738}$

3. $37 \overline{)1890}$

4. $23 \overline{)705}$

5. $56 \overline{)2010}$

6. $86 \overline{)3752}$

7. $19 \overline{)1066}$

8. $42 \overline{)2175}$

9. $37 \overline{)1381}$

10. $82 \overline{)7184}$

11. $97 \overline{)4783}$

12. $78 \overline{)4448}$

For each checking statement, write a corresponding division.

13. $45 \times 29 + 3 = 1308$

14. $28 \times 22 + 6 = 622$

15. $37 \times 41 + 5 = 1522$

16. $62 \times 71 + 1 = 4403$

Solve.

17. The theatre needs 912 *Mini-Martian* candy bars to sell. They come in boxes of 24. How many boxes should they order?

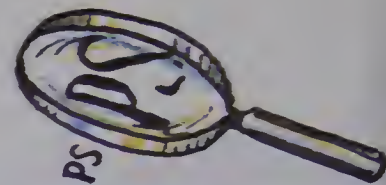
18. Five boys and seven girls distributed handbills about the movie. Altogether they gave out 1044 handbills. If they each distributed the same number, how many did each one give out?

Winning Ticket

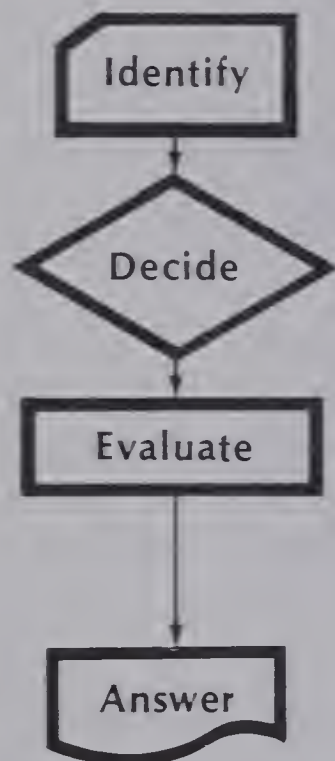
The printer did not put the 0 in the number on the winning ticket. Can you put it in correctly? The winning number is the product of a two-digit number (between 30 and 60) multiplied by itself.



Extra Information



Section A at Music Hall has 60 seats in rows of 12. When they are sold out, the ticket money for these seats totals \$900. How much does a ticket for a seat in Section A cost?

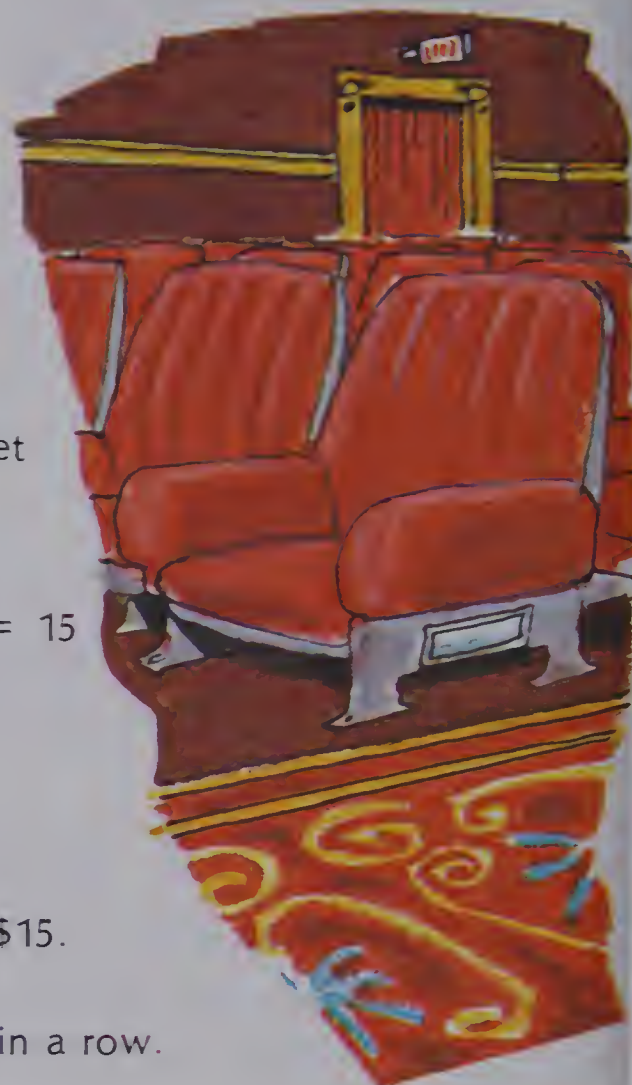


60 seats
~~12 seats in a row~~
 \$900 total ticket sales

To find **how much** one ticket costs, **divide**.

$$\begin{array}{r}
 15 \\
 60 \overline{) 900} \\
 \underline{-60} \\
 300 \\
 \underline{-300} \\
 0
 \end{array}
 \qquad
 900 \div 60 = 15$$

Each of these tickets costs \$15.



You didn't need to know the number of seats in a row.

EXERCISES

What information is not needed?

- Grade 5 made 180 Christmas cards. It took them 3 days. They sold the cards for 15¢ each. How much money did they take in?
- Mercy practised 3 pieces on her clarinet. She practised for a total of 780 min. How many hours was that?
- Lou rented a pair of skates at 1:00 o'clock and used them 4 h. The charge was 75¢ an hour. How much did Lou have to pay?

PRACTICE

Solve each problem.

1. Mrs. Byrne has 60 jelly jars. Each of them holds 224 mL. She filled 24 with apple jelly. How much apple jelly does she have?
2. The *Lazy Rooster* game costs the storekeeper \$6.00. She sells it for \$9.00. How much money does she pay for 27 games?
3. There are 30 students in Grade 5. They want to order 180 chocolate chip cookies. The cookies come in packages of 24. How many packages should they order?
4. Treesbank School has 350 children. The 250 children in Grades 1 to 4 are going to the zoo. Each bus can take 42 children. How many buses do they need?
5. An 18-year-old usher at the theatre earns \$155 a week. How much does he earn in 52 weeks?

REVIEW

Divide.

- | | | | | |
|-----|--------------------------|--------------------------|---------------------------|---------------------------|
| A29 | 1. $60 \overline{)428}$ | 2. $38 \overline{)242}$ | 3. $47 \overline{)203}$ | 4. $91 \overline{)275}$ |
| A30 | 5. $52 \overline{)271}$ | 6. $36 \overline{)327}$ | 7. $43 \overline{)325}$ | 8. $19 \overline{)167}$ |
| A31 | 9. $60 \overline{)4500}$ | 10. $40 \overline{)760}$ | 11. $80 \overline{)3920}$ | 12. $70 \overline{)3920}$ |
| A32 | 13. $19 \overline{)247}$ | 14. $32 \overline{)832}$ | 15. $53 \overline{)1789}$ | 16. $27 \overline{)2419}$ |
| A33 | 17. $44 \overline{)578}$ | 18. $16 \overline{)384}$ | 19. $56 \overline{)2250}$ | 20. $74 \overline{)5317}$ |

TEST

UNIT 6

Multiply.

$$\begin{array}{r} 1. \quad 430 \\ \times 25 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 360 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 930 \\ \times 68 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 660 \\ \times 34 \\ \hline \end{array}$$

Estimate the product.

$$\begin{array}{r} 5. \quad 311 \\ \times 52 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 407 \\ \times 41 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 588 \\ \times 43 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 492 \\ \times 59 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} 9. \quad 267 \\ \times 45 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 916 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 181 \\ \times 53 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 705 \\ \times 82 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad \$4.82 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad \$5.07 \\ \times 40 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad \$8.24 \\ \times 61 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad \$7.51 \\ \times 19 \\ \hline \end{array}$$

Divide.

$$17. \quad 19 \overline{)182}$$

$$18. \quad 62 \overline{)248}$$

$$19. \quad 23 \overline{)174}$$

$$20. \quad 77 \overline{)641}$$

$$21. \quad 36 \overline{)261}$$

$$22. \quad 52 \overline{)408}$$

$$23. \quad 27 \overline{)143}$$

$$24. \quad 94 \overline{)422}$$

$$25. \quad 20 \overline{)260}$$

$$26. \quad 60 \overline{)5040}$$

$$27. \quad 70 \overline{)3920}$$

$$28. \quad 50 \overline{)2900}$$

$$29. \quad 28 \overline{)2440}$$

$$30. \quad 37 \overline{)2056}$$

$$31. \quad 52 \overline{)1638}$$

$$32. \quad 45 \overline{)575}$$

$$33. \quad 56 \overline{)2343}$$

$$34. \quad 74 \overline{)5848}$$

$$35. \quad 87 \overline{)3752}$$

$$36. \quad 19 \overline{)1053}$$

Solve.

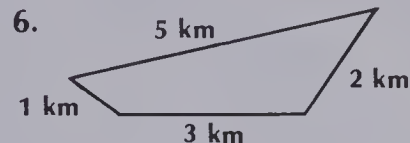
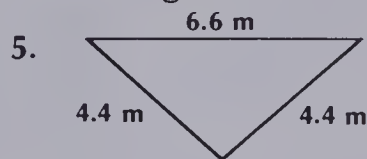
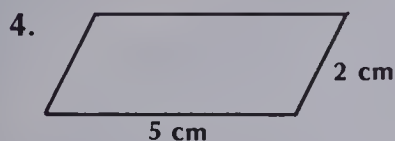
37. The theatre needs about 72 small tubs and 39 large tubs for popcorn at each movie showing. How many small tubs should they order for 21 showings?

MEASUREMENT

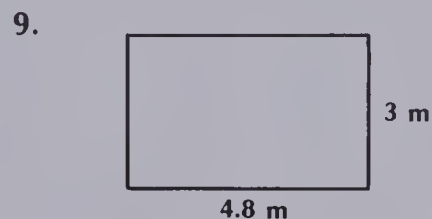
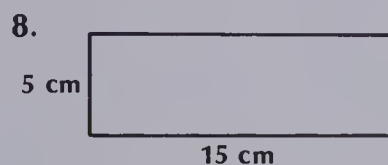
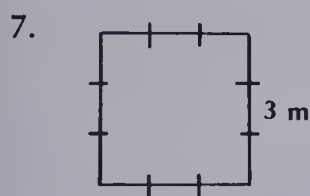
Would you use millimetres, centimetres, metres, or kilometres to measure these lengths?

1. a pair of scissors
2. a fence
3. a stamp

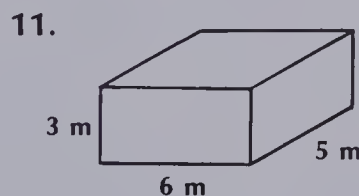
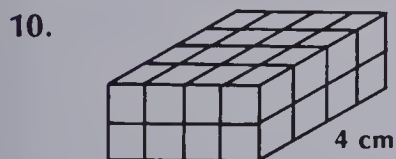
What is the perimeter of each figure?



What is the area?



What is the volume?



12. A box with:
Length = 15 cm
Width = 8 cm
Height = 11 cm

Which is more likely?

13. a thimble: 60 mL or 6 mL 14. a birdbath: 2 L or 2 mL

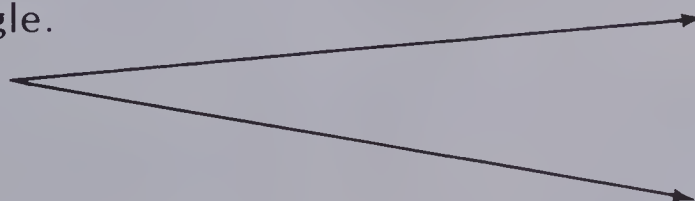
Copy and complete.

15. $3000 \text{ kg} = \blacksquare \text{ t}$ 16. $9 \text{ kg} = \blacksquare \text{ g}$ 17. $\blacksquare \text{ t} = 1500 \text{ kg} + 500 \text{ kg}$

Name the angles that are right angles.



19. Measure the angle.



Solve.

20. If 1 kg of apples costs \$1.05, what do 6 kg cost?

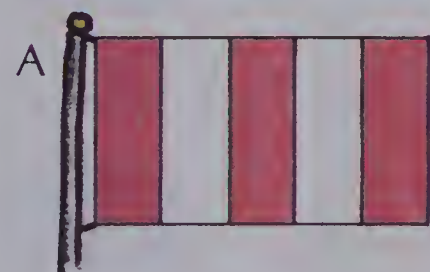
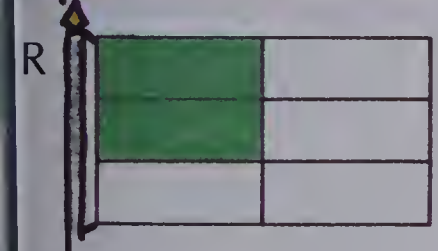
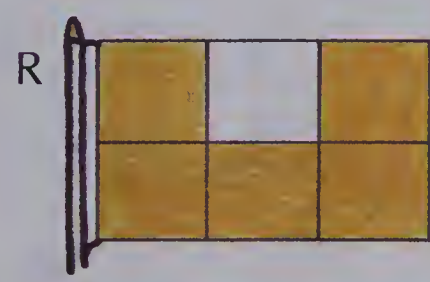
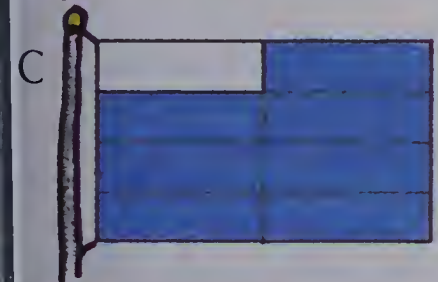
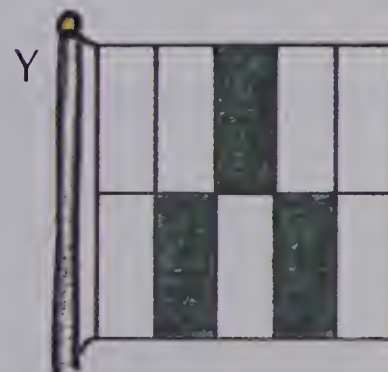
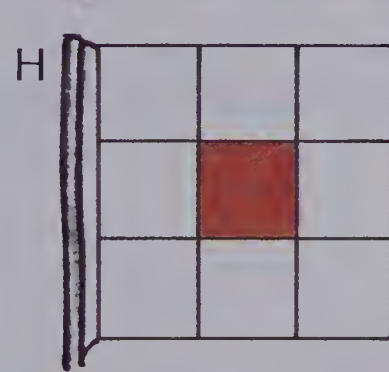
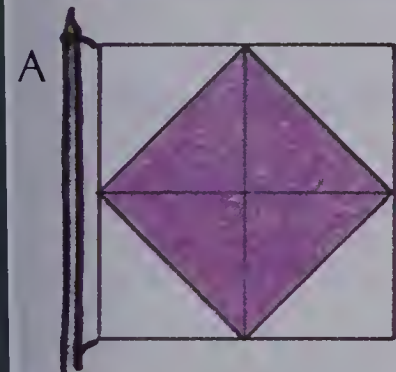
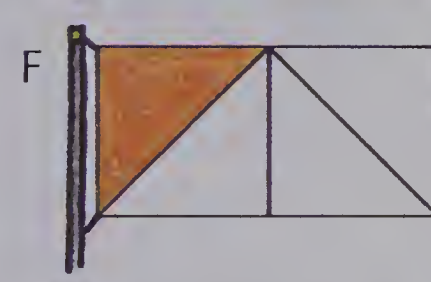
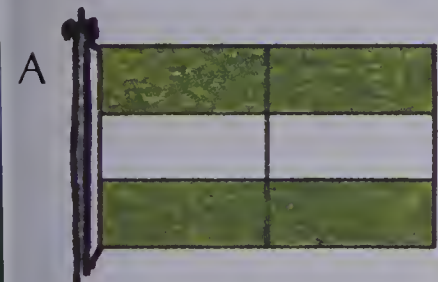
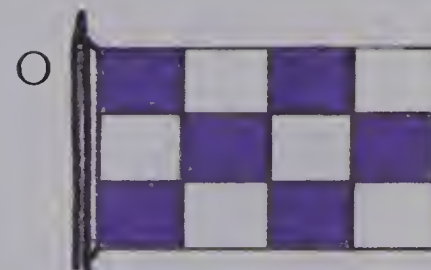
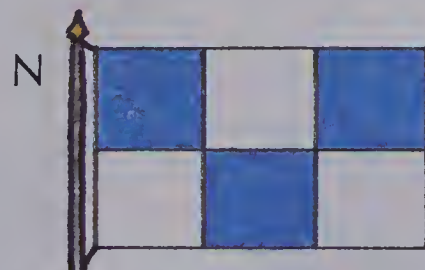
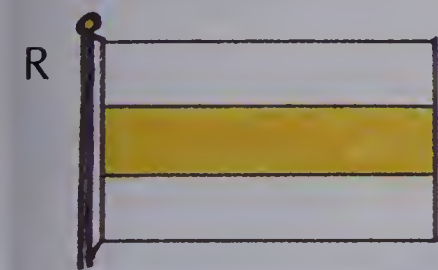
UNIT 7

FRACTIONS & RATIOS



Fraction Flags

What fraction of the flag is coloured? Match the letter of the flag to a fraction below.

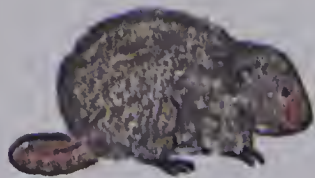


$\frac{1}{9}$ $\frac{2}{3}$ $\frac{1}{3}$ $\frac{2}{6}$ $\frac{4}{6}$ $\frac{3}{10}$

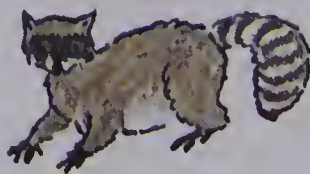
$\frac{1}{4}$ $\frac{6}{12}$ $\frac{5}{6}$

$\frac{7}{8}$ $\frac{3}{5}$ $\frac{3}{6}$ $\frac{4}{8}$ $\frac{2}{5}$ $\frac{2}{4}$

Fractions: Part of a Set



beaver



raccoon



moose



salmon



Eastern
cougar



wood bison



peregrine
falcon



polar bear

3 of these 8 Canadian animals are endangered species.

$\frac{3}{8}$ are endangered species.

$\frac{3}{8}$ ← numerator

8 ← denominator

EXERCISES

What fraction of the set is shaded?



Write the denominator.

10. $\frac{5}{11}$

11. $\frac{7}{8}$





12. $\frac{1}{2}$

13. $\frac{3}{5}$

14. $\frac{0}{7}$

PRACTICE

What fraction of the set is shaded?

1.  2.  3.  4. 

Is 8 the numerator or the denominator?

5. $\frac{8}{9}$ 6. $\frac{5}{8}$ 7. $\frac{8}{12}$ 8. $\frac{8}{11}$ 9. $\frac{1}{8}$ 10. $\frac{8}{8}$

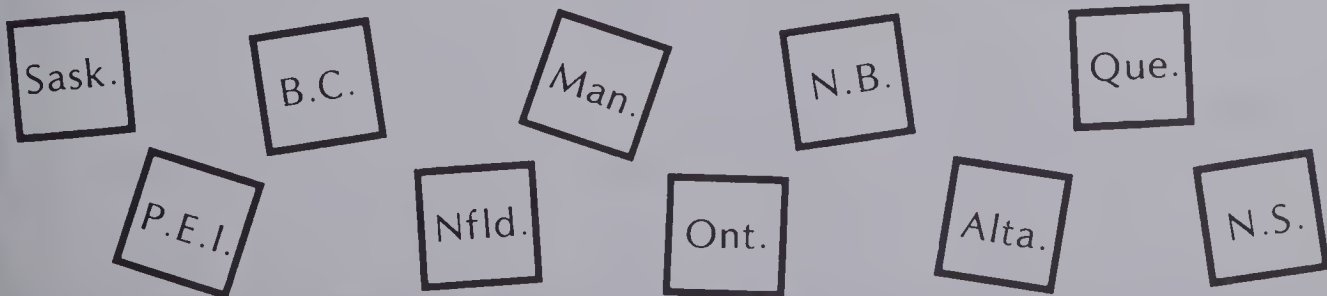
Write the fraction.

11. three fifths 12. seven tenths
13. two thirds 14. zero fourths
15. five sevenths 16. eight ninths
17. Eleven birds. 4 of the 11 stay in Canada for the winter.
18. Five animals. 3 of the 5 live only in wilderness areas.
19. Three out of eight flowers bloom in Spring.

Our Provinces

Write the fraction. Name the provinces.

- Four of the ten provinces have names with two or more words.
- Names of three of the ten provinces start with the letter "N".
- Names of two of the ten provinces start with a vowel.
- Eight of the ten provinces border the U.S.
- Four of the ten provinces border the Yukon or the Northwest Territories.



Fractional Parts of a Set



$\frac{1}{3}$ of the 12 crests belong to the Maritime Provinces.

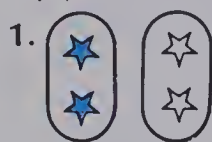
4 of the crests belong to the Maritime Provinces.

$$\frac{1}{3} \text{ of } 12 = 4$$

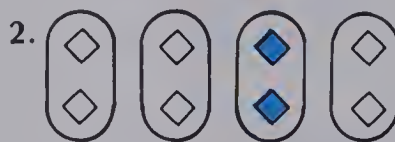
$$\frac{1}{3} \times 12 = 4 \quad \text{or} \quad 12 \div 3 = 4$$

EXERCISES

Copy and complete.



$$\frac{1}{2} \text{ of } 4 = \blacksquare$$



$$\frac{1}{4} \text{ of } 8 = \blacksquare$$



$$\frac{1}{5} \text{ of } 10 = \blacksquare$$

4. $\frac{1}{3} \times 9 = \blacksquare$
 $9 \div 3 = \blacksquare$

5. $\frac{1}{2} \times 10 = \blacksquare$
 $10 \div 2 = \blacksquare$

6. $\frac{1}{4} \times 12 = \blacksquare$
 $12 \div 4 = \blacksquare$

Draw a picture. Copy and complete.

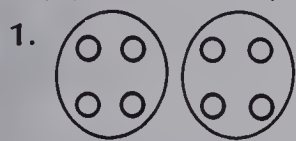
7. $\frac{1}{2} \times 2 = \blacksquare$
 $2 \div 2 = \blacksquare$

8. $\frac{1}{3} \times 15 = \blacksquare$
 $15 \div 3 = \blacksquare$

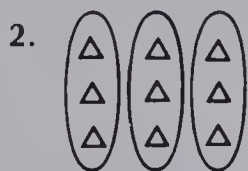
9. $\frac{1}{6} \times 12 = \blacksquare$
 $12 \div 6 = \blacksquare$

PRACTICE

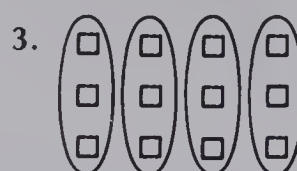
Copy and complete.



$$\frac{1}{2} \times 8 = \blacksquare$$



$$\frac{1}{3} \times 9 = \blacksquare$$



$$\frac{1}{4} \times 12 = \blacksquare$$

4. $\frac{1}{3} \times 3 = \blacksquare$
 $3 \div 3 = \blacksquare$

5. $\frac{1}{4} \times 16 = \blacksquare$
 $16 \div 4 = \blacksquare$

6. $\frac{1}{2} \times 14 = \blacksquare$
 $14 \div 2 = \blacksquare$

Multiply.

7. $\frac{1}{5} \times 15$

8. $\frac{1}{4} \times 20$

9. $\frac{1}{2} \times 16$

10. $\frac{1}{3} \times 18$

11. $\frac{1}{2} \times 20$

12. $\frac{1}{2} \times 18$

Draw a picture. Solve.

13. Tom had 12 pennies. He gave $\frac{1}{3}$ of them to his brother.
 How many pennies did he give to his brother?

14. There are 20 cars in the parking lot. One fifth of them have Alberta license plates. How many cars have Alberta license plates?

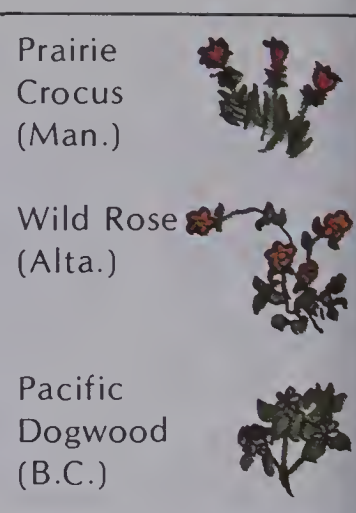
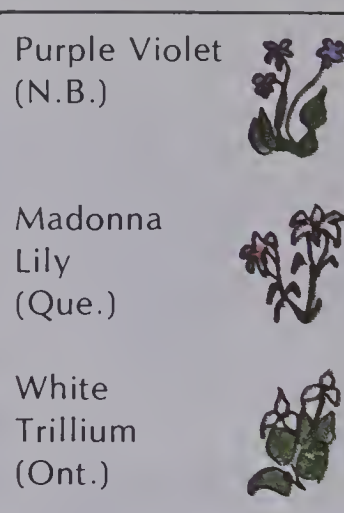
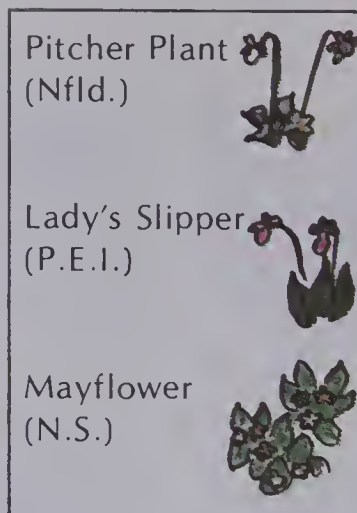
Computer Tutor

IN	OUT
18	9
40	20
24	?
42	?
26	?

IN	OUT
30	10
24	8
33	?
27	?
69	?

IN	OUT
12	3
24	6
16	?
32	?
44	?

Fractional Parts of a Set



$\frac{1}{4}$ of these 12 wildflowers do not bloom in the spring.

$$\frac{1}{4} \text{ of } 12 = 3$$

$$\frac{1}{4} \times 12 = 3$$

$\frac{3}{4}$ of these 12 wildflowers bloom in the spring.

$$\frac{3}{4} \text{ of } 12 = 9$$

$$\frac{3}{4} \times 12 = 9$$

EXERCISES

Copy and complete.

1.



$$\frac{1}{3} \text{ of } 6 = \blacksquare$$

$$\frac{2}{3} \text{ of } 6 = \blacksquare$$

$$\frac{3}{3} \text{ of } 6 = \blacksquare$$

2.



$$\frac{1}{2} \times 8 = \blacksquare$$

$$\frac{2}{2} \times 8 = \blacksquare$$

3.



$$\frac{1}{4} \times 16 = \blacksquare$$

$$\frac{2}{4} \times 16 = \blacksquare$$

$$\frac{3}{4} \times 16 = \blacksquare$$

$$\frac{4}{4} \times 16 = \blacksquare$$

Draw a picture. Complete.

4. $\frac{1}{5}$ of 10 = \blacksquare

$\frac{3}{5}$ of 10 = \blacksquare

5. $\frac{1}{4} \times 20 = \blacksquare$

$\frac{3}{4} \times 20 = \blacksquare$

6. $\frac{1}{3} \times 18 = \blacksquare$

$\frac{2}{3} \times 18 = \blacksquare$

7. $\frac{4}{5} \times 15 = \blacksquare$

8. $\frac{2}{3} \times 21 = \blacksquare$

9. $\frac{5}{6} \times 12 = \blacksquare$

PRACTICE

Multiply.

1. $\frac{3}{5} \times 20$

2. $\frac{5}{8} \times 16$

3. $\frac{3}{4} \times 24$

4. $\frac{2}{3} \times 12$

5. $\frac{4}{5} \times 15$

6. $\frac{2}{7} \times 14$

7. $\frac{2}{3} \times 18$

8. $\frac{3}{5} \times 25$

9. $\frac{5}{6} \times 30$

10. $\frac{3}{7} \times 14$

11. $\frac{2}{3} \times 30$

12. $\frac{3}{4} \times 40$

Solve.

13. There are 18 crayons in Phil's box. Two thirds of them have never been used. How many have never been used?

14. A class in Winnipeg has 24 students. Three fourths of them were born in Manitoba. How many were born in Manitoba?

Willing Fractions

A rancher gave 17 horses to his 3 children.
The oldest, Jane, was to get $\frac{1}{2}$ of the horses.
The middle child, Fred, was to get $\frac{1}{3}$.
The youngest, Barb, was to get $\frac{1}{9}$ of the horses.
But you can't take $\frac{1}{2}$, $\frac{1}{3}$ or $\frac{1}{9}$ of 17.

Jane, Fred, and Barb solved the problem by borrowing an extra horse. So they now had 18 to split.

They used 17 horses and returned the borrowed one.

They were surprised by the result. Can you figure out why they had one left over? Did each of them get his or her fair share? Draw diagrams to help.



$\frac{1}{2} \times 18 =$	9
$\frac{1}{3} \times 18 =$	6
$\frac{1}{9} \times 18 =$	$\frac{2}{17}$

Ratios

For the Canada Day parade, each girl in Gina's scout troop was given 2 flags to wave.



The ratio of flags to girls is 2 to 1.

2 flags for 1 girl. 2 to 1 or $\frac{2}{1}$

4 flags for 2 girls. 4 to 2 or $\frac{4}{2}$

6 flags for 3 girls. 6 to 3 or $\frac{6}{3}$

EXERCISES

What is the ratio?

1. There is 1 bicycle for each child.
The ratio is ■ to 1.
2. There are 10 m of crepe paper for each bicycle.
The ratio is 10 to ■.
3. There are 3 prizes for 10 children.
The ratio is ■ to ■.

Write the ratio two ways.

4. 2 books for every 3 children. ■ to ■ or $\frac{\blacksquare}{\blacksquare}$
5. 50 leaves from every tree
6. 18 cookies in each pan
7. 7 hamburgers for every 4 people
8. 100 stamps in each collection
9. Each child collected 100 stamps.
10. 3 beavers for every 25 trees
11. 5 bicycles to 2 cars
12. 6 canoes to 12 paddles

PRACTICE

Write the ratio two ways.

1.



2.



3.



4. 18 crayons to 5 pencils

6. 3 erasers to 7 mistakes

8. 4 girls to 5 boys

5. 5 trains to 9 cars

7. 9 books to 4 pupils

9. 20 motorcycles to 13 bicycles

Solve.

10. Joanne got 53 hits during the baseball season. 7 of her hits were home runs. Write the ratio of home runs to hits.

11. During the first half of the hockey season, Greg scored 14 goals and had 23 assists. Write the ratio of assists to total points.

12. Ms. Frank's class has 11 girls and 14 boys.
What is the ratio of boys to students?

On Target

Jill, Linda, and Kathy entered an archery competition. Each archer shot 6 arrows and all the arrows hit the target. The hits are shown on the target. The three girls ended the competition with the same score. Which hits did each girl make?



Proportion

Leon counted his coins. He had 9 dimes and 6 nickels.

What was the ratio of dimes to nickels?

$$\frac{9 \text{ dimes}}{6 \text{ nickels}} \text{ or } \frac{9}{6}$$

He sorted the coins into sets.



What is the ratio of dimes to nickels in each set? $\frac{3}{2}$

$$\frac{9 \text{ dimes}}{6 \text{ nickels}} = \frac{3 \text{ dimes}}{2 \text{ nickels}}$$

$$\frac{9}{6} = \frac{9 \div 3}{6 \div 3} = \frac{3}{2}$$



EXERCISES

Write two ratios.



$$\frac{10}{\blacksquare} \text{ or } \frac{5}{\blacksquare}$$



$$\frac{\blacksquare}{12} \text{ or } \frac{\blacksquare}{4}$$

Copy and complete.

3. $\frac{1}{3} = \frac{1 \times 4}{3 \times 4} = \frac{4}{\blacksquare}$

4. $\frac{8}{16} = \frac{8 \div 8}{16 \div 8} = \frac{1}{\blacksquare}$

5. $\frac{2}{5} = \frac{2 \times 5}{5 \times 5} = \frac{\blacksquare}{25}$

6. $\frac{16}{12} = \frac{16 \div 4}{12 \div 4} = \frac{4}{\blacksquare}$

7. $\frac{3}{20} = \frac{3 \times 2}{20 \times 2} = \frac{\blacksquare}{\blacksquare}$

8. $\frac{30}{15} = \frac{30 \div 15}{15 \div 15} = \frac{\blacksquare}{\blacksquare}$

Copy and complete the chart.

9.

3	6	9	12		
5	10			25	30

PRACTICE

Write two ratios.



Copy and complete the chart.

3.

2	4	6		10	
15¢	30¢		60¢		120¢

Copy and complete.

4. $\frac{4}{5} = \frac{4 \times 2}{5 \times 2} = \frac{\blacksquare}{\blacksquare}$

5. $\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{\blacksquare}{\blacksquare}$

6. $\frac{1}{6} = \frac{1 \times 3}{6 \times 3} = \frac{\blacksquare}{\blacksquare}$

7. $\frac{12}{18} = \frac{12 \div 6}{18 \div 6} = \frac{\blacksquare}{\blacksquare}$

8. $\frac{3}{7} = \frac{3 \times 4}{7 \times 4} = \frac{\blacksquare}{\blacksquare}$

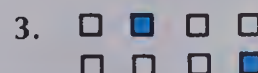
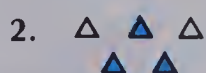
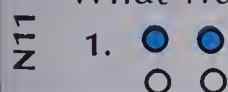
9. $\frac{10}{30} = \frac{10 \div 10}{30 \div 10} = \frac{\blacksquare}{\blacksquare}$

Solve.

10. A city council has 2 members from every ward. If there are 20 members on the council, how many wards are there?

REVIEW

What fraction of the set is shaded?



Multiply.

A34 4. $\frac{1}{2} \times 12$

5. $\frac{1}{4} \times 16$

6. $\frac{1}{3} \times 9$

A35 7. $\frac{2}{3} \times 15$

8. $\frac{3}{7} \times 14$

9. $\frac{4}{5} \times 20$

What is the ratio?

- N12 10. 3 pencils for each student

11. 3 tickets for 25¢

Copy and complete.

N13 12. $\frac{2}{3} = \frac{2 \times 5}{3 \times 5} = \frac{\blacksquare}{\blacksquare}$

13. $\frac{25}{30} = \frac{25 \div 5}{30 \div 5} = \frac{\blacksquare}{\blacksquare}$

Proportional Ratios



1 beaver to 3 trees
2 beavers to 6 trees

$$\frac{1}{3} = \frac{2}{6}$$

$$\frac{1 \times 2}{3 \times 2} = \frac{2}{6}$$



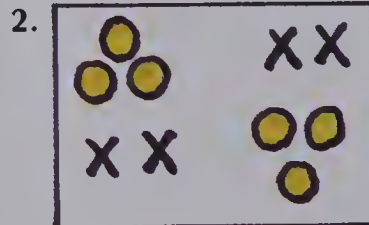
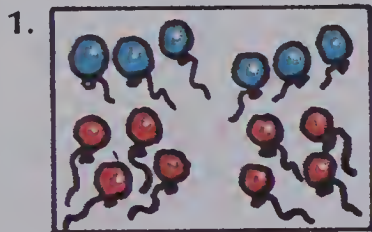
10 dimes to 4 quarters
5 dimes to 2 quarters

$$\frac{10}{4} = \frac{5}{2}$$

$$\frac{10 \div 2}{4 \div 2} = \frac{5}{2}$$

EXERCISES

Write a pair of ratios suggested by the picture.



Find the missing term.

4. $\frac{3}{5} = \frac{\blacksquare}{10}$

5. $\frac{5}{8} = \frac{\blacksquare}{16}$

6. $\frac{1}{4} = \frac{\blacksquare}{12}$

7. $\frac{2}{3} = \frac{\blacksquare}{9}$

8. $\frac{3}{4} = \frac{6}{\blacksquare}$

9. $\frac{3}{2} = \frac{9}{\blacksquare}$

10. $\frac{1}{3} = \frac{4}{\blacksquare}$

11. $\frac{4}{5} = \frac{20}{\blacksquare}$

12. $\frac{20}{24} = \frac{\blacksquare}{6}$

13. $\frac{18}{24} = \frac{\blacksquare}{4}$

14. $\frac{9}{12} = \frac{3}{\blacksquare}$

15. $\frac{10}{15} = \frac{2}{\blacksquare}$

16. $\frac{\blacksquare}{7} = \frac{9}{21}$

17. $\frac{\blacksquare}{5} = \frac{10}{50}$

18. $\frac{4}{\blacksquare} = \frac{20}{30}$

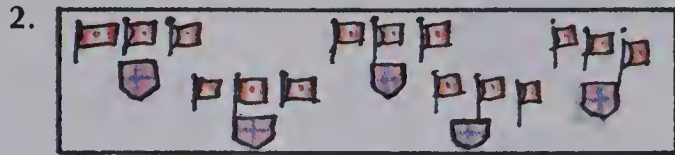
19. $\frac{6}{\blacksquare} = \frac{1}{2}$

PRACTICE

Which ratios show the comparisons in the picture?



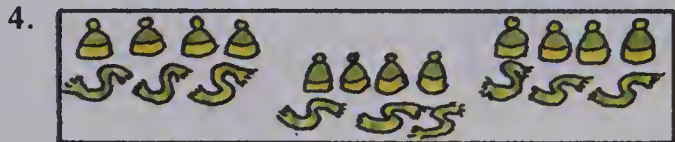
$$\frac{2}{2}, \frac{6}{12}, \frac{1}{2}, \frac{4}{8}, \frac{6}{8}, \frac{2}{4}$$



$$\frac{6}{2}, \frac{3}{3}, \frac{1}{6}, \frac{15}{5}, \frac{9}{3}, \frac{1}{2}$$



$$\frac{3}{1}, \frac{2}{5}, \frac{6}{15}, \frac{4}{5}, \frac{4}{10}, \frac{2}{3}$$



$$\frac{4}{3}, \frac{8}{6}, \frac{3}{9}, \frac{3}{3}, \frac{12}{9}, \frac{10}{7}$$

Find the missing term.

5. $\frac{6}{10} = \frac{\blacksquare}{100}$

6. $\frac{18}{27} = \frac{2}{\blacksquare}$

7. $\frac{\blacksquare}{1} = \frac{56}{8}$

8. $\frac{21}{\blacksquare} = \frac{7}{8}$

9. $\frac{\blacksquare}{8} = \frac{15}{40}$

10. $\frac{24}{36} = \frac{\blacksquare}{9}$

11. $\frac{9}{10} = \frac{27}{\blacksquare}$

12. $\frac{5}{\blacksquare} = \frac{1}{2}$

13. $\frac{7}{1} = \frac{\blacksquare}{9}$

14. $\frac{\blacksquare}{20} = \frac{5}{100}$

15. $\frac{3}{\blacksquare} = \frac{18}{48}$

16. $\frac{1}{3} = \frac{\blacksquare}{54}$

17. $\frac{40}{\blacksquare} = \frac{4}{5}$

18. $\frac{10}{25} = \frac{30}{\blacksquare}$

19. $\frac{\blacksquare}{5} = \frac{4}{1}$

20. $\frac{200}{500} = \frac{\blacksquare}{100}$

Ratio Raceway

Copy the chart. Mark ratios that are equal to $\frac{1}{4}$ to find a path through the blocks. Use blocks that have sides or corners touching. There is more than one path through the blocks.

	$\frac{6}{25}$	$\frac{9}{34}$	$\frac{7}{28}$	$\frac{7}{30}$	$\frac{20}{100}$	
	$\frac{2}{6}$	$\frac{22}{88}$	$\frac{4}{10}$	$\frac{15}{60}$	$\frac{10}{50}$	
	$\frac{6}{24}$	$\frac{2}{10}$	$\frac{5}{20}$	$\frac{5}{15}$	$\frac{7}{30}$	
Start	$\frac{1}{4}$	$\frac{3}{12}$	$\frac{25}{100}$	$\frac{3}{9}$	$\frac{12}{48}$	$\frac{20}{80}$
	$\frac{4}{16}$	$\frac{10}{40}$	$\frac{2}{8}$	$\frac{4}{18}$	$\frac{9}{36}$	$\frac{1}{4}$

Finish

Equivalent Fractions



$$\frac{2}{5}$$



$$\frac{4}{10}$$



$$\frac{6}{15}$$

$$\frac{2}{5} = \frac{4}{10} = \frac{6}{15}$$

Equivalent fractions (same value)



$$\frac{3}{4}$$



$$\frac{6}{8}$$



$$\frac{9}{12}$$

$$\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$$

Equivalent fractions (same value)

$$\frac{1 \times 2}{2 \times 2} = \frac{2}{4}$$

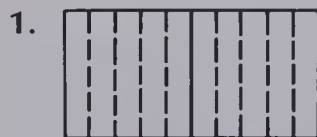
$$\frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$

$$\frac{1 \times 4}{2 \times 4} = \frac{4}{8}$$

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$

EXERCISES

Write equivalent fractions.



$$\frac{1}{2} = \frac{\blacksquare}{\blacksquare}$$



$$\frac{1}{4} = \frac{\blacksquare}{\blacksquare}$$



$$\frac{2}{5} = \frac{\blacksquare}{\blacksquare}$$



$$\frac{2}{2} = \frac{\blacksquare}{\blacksquare}$$

5. $\frac{3}{5} = \frac{\blacksquare}{10} = \frac{\blacksquare}{15}$

6. $\frac{1}{2} = \frac{\blacksquare}{4} = \frac{\blacksquare}{8}$

7. $\frac{4}{5} = \frac{8}{\blacksquare} = \frac{12}{\blacksquare}$

8. $\frac{3}{2} = \frac{6}{\blacksquare} = \frac{9}{\blacksquare}$

9. $\frac{4}{20} = \frac{2}{\blacksquare} = \frac{1}{\blacksquare}$

10. $\frac{18}{48} = \frac{6}{\blacksquare} = \frac{3}{\blacksquare}$

PRACTICE

Write equivalent fractions.

1. $\frac{4}{5} = \frac{\blacksquare}{10} = \frac{\blacksquare}{15}$

2. $\frac{1}{6} = \frac{2}{\blacksquare} = \frac{3}{\blacksquare}$

3. $\frac{3}{2} = \frac{\blacksquare}{4} = \frac{\blacksquare}{8}$

4. $\frac{1}{10} = \frac{\blacksquare}{20} = \frac{\blacksquare}{50}$

5. $\frac{3}{100} = \frac{6}{\blacksquare} = \frac{15}{\blacksquare}$

6. $\frac{2}{9} = \frac{\blacksquare}{18} = \frac{\blacksquare}{45}$

7. $\frac{90}{100} = \frac{\blacksquare}{10}$

8. $\frac{90}{100} = \frac{45}{\blacksquare}$

9. $\frac{90}{100} = \frac{\blacksquare}{20}$

10. $\frac{16}{24} = \frac{4}{\blacksquare}$

11. $\frac{16}{24} = \frac{\blacksquare}{3}$

12. $\frac{16}{24} = \frac{8}{\blacksquare}$

13. $\frac{16}{40} = \frac{\blacksquare}{10}$

14. $\frac{16}{40} = \frac{2}{\blacksquare}$

Write two equivalent fractions for the shaded part of the figure.

15.



16.



17.



Are the pairs of fractions equivalent?

18. $\frac{1}{2}, \frac{1}{4}$

19. $\frac{3}{6}, \frac{12}{24}$

20. $\frac{11}{10}, \frac{44}{40}$

21. $\frac{1}{10}, \frac{1}{100}$

Match the equivalent fractions.

22. $\frac{1}{2}$

23. $\frac{3}{4}$

24. $\frac{2}{3}$

25. $\frac{7}{10}$

26. $\frac{2}{5}$

a. $\frac{12}{30}$

b. $\frac{14}{20}$

c. $\frac{7}{14}$

d. $\frac{15}{20}$

e. $\frac{20}{30}$

Money Matters

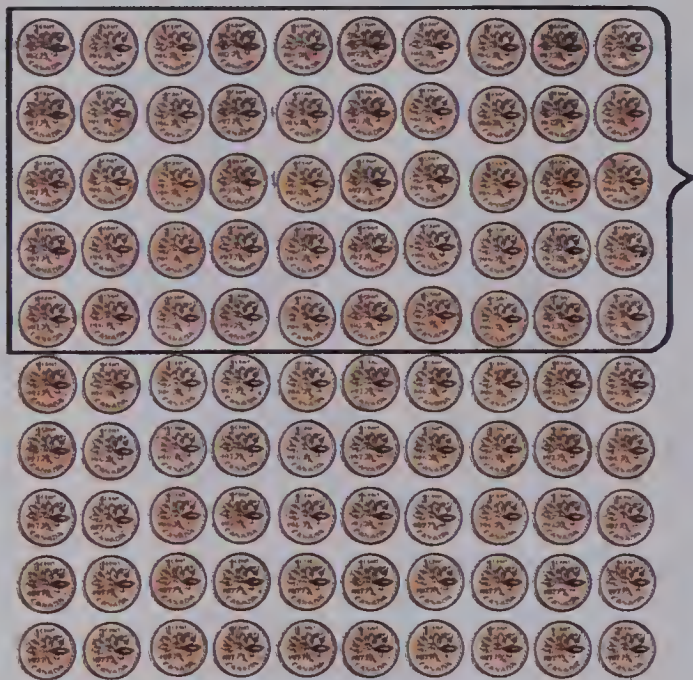
Sarah found a change purse that had a number of coins in it. She noted that $\frac{1}{2}$ of the coins were nickels, $\frac{1}{3}$ were pennies, and $\frac{1}{6}$ were dimes.

There were 12 nickels. How many dimes and pennies were in the purse?

How much money was there?



Fractions and Decimals



100 pennies

\$0.50 is half of a dollar.

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10} = 0.5$$

$$\frac{1}{2} = \frac{1 \times 50}{2 \times 50} = \frac{50}{100} = 0.50$$

\$0.50 is $\frac{50}{100}$ of a dollar.

EXERCISES

Write the equivalent fraction.

1.



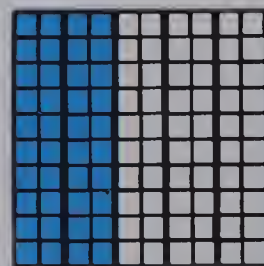
$$\frac{2}{10} = \frac{\blacksquare}{10}$$

2.



$$\frac{6}{10} = \frac{\blacksquare}{10}$$

3.



$$\frac{40}{100} = \frac{\blacksquare}{100}$$

4.



$$\frac{30}{40} = \frac{\blacksquare}{100}$$

Copy and complete.

5. $\frac{1}{5} = \frac{\blacksquare}{10} = 0.\blacksquare$

6. $\frac{3}{5} = \frac{\blacksquare}{10} = 0.\blacksquare$

7. $\frac{4}{5} = \frac{\blacksquare}{10} = 0.\blacksquare$

8. $\frac{2}{5} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

9. $\frac{3}{4} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

10. $\frac{7}{25} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

11. $\frac{4}{10} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

12. $\frac{3}{50} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

13. $\frac{1}{20} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

PRACTICE

Write the equivalent fraction.

1. $\frac{1}{2} = \frac{\blacksquare}{10}$ 2. $\frac{2}{5} = \frac{\blacksquare}{10}$ 3. $\frac{3}{20} = \frac{\blacksquare}{100}$ 4. $\frac{2}{50} = \frac{\blacksquare}{100}$

Copy and complete.

5. $\frac{1}{2} = \frac{\blacksquare}{10} = 0.\blacksquare$ 6. $\frac{3}{5} = \frac{\blacksquare}{10} = 0.\blacksquare$ 7. $\frac{7}{10} = 0.\blacksquare$

8. $\frac{4}{5} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$ 9. $\frac{1}{4} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$ 10. $\frac{81}{100} = 0.\blacksquare\blacksquare$

11. $\frac{7}{50} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$ 12. $\frac{11}{25} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$ 13. $\frac{3}{10} = \frac{\blacksquare}{100} = 0.\blacksquare\blacksquare$

14. $\frac{4}{5} = 0.\blacksquare$ 15. $\frac{9}{10} = 0.\blacksquare$ 16. $\frac{1}{2} = 0.\blacksquare$ 17. $\frac{6}{100} = 0.\blacksquare\blacksquare$

18. $\frac{10}{25} = 0.\blacksquare\blacksquare$ 19. $\frac{4}{20} = 0.\blacksquare\blacksquare$ 20. $\frac{8}{10} = 0.\blacksquare\blacksquare$ 21. $\frac{2}{5} = 0.\blacksquare\blacksquare$

USING THE CALCULATOR

Use a calculator to change these fractions to decimals.

a. $\frac{1}{2}$ b. $\frac{2}{5}$ c. $\frac{3}{4}$ d. $\frac{7}{10}$ e. $\frac{7}{100}$

f. $\frac{49}{100}$ g. $\frac{27}{100}$ h. $\frac{19}{25}$ i. $\frac{42}{50}$ j. $\frac{13}{20}$

k. $\frac{18}{20}$ l. $\frac{4}{5}$ m. $\frac{17}{50}$ n. $\frac{100}{100}$ o. $\frac{2}{2}$

What is the decimal name for the last two fractions?

$\frac{1}{2}$ means $1 \div 2$.

Punch $\boxed{1} \boxed{\div} \boxed{2} \boxed{=}$

Now you have the decimal name for $\frac{1}{2}$.



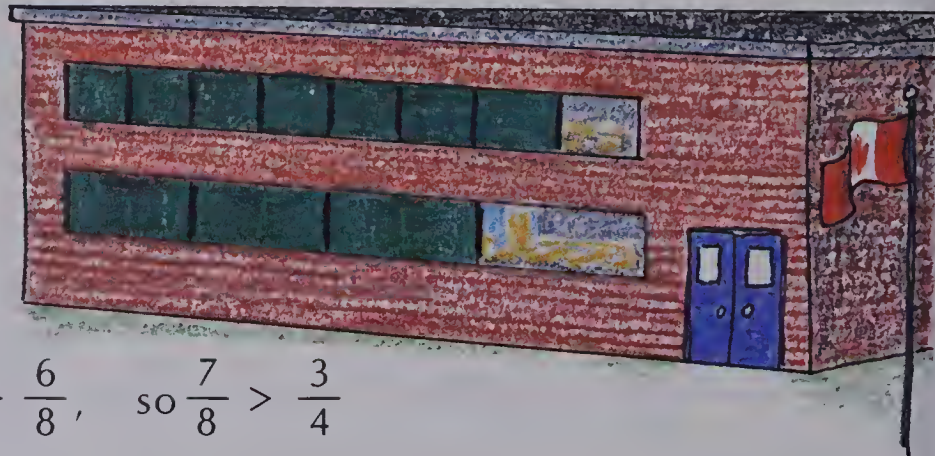
Comparing Fractions

$\frac{7}{8}$ of the shades are down.

$\frac{3}{4}$ of the shades are down.

Which is greater, $\frac{3}{4}$ or $\frac{7}{8}$?

$$\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8} \quad \frac{7}{8} > \frac{6}{8}, \text{ so } \frac{7}{8} > \frac{3}{4}$$



Use equivalent fractions with the **same denominator** to compare fractions.

EXERCISES

Compare the fractions. Write $>$ or $<$.

1. $\frac{5}{8} \bullet \frac{2}{8}$

2. $\frac{3}{7} \bullet \frac{4}{7}$

3. $\frac{5}{6} \bullet \frac{6}{6}$

4. $\frac{9}{10} \bullet \frac{7}{10}$

Find the missing number for \blacksquare . Write $>$ or $<$ for \bullet .

5. $\frac{\quad}{3} = \frac{\blacksquare}{6}$

6. $\frac{\quad}{2} = \frac{\blacksquare}{4}$

$\frac{\quad}{3} \bullet \frac{5}{6}$

$\frac{\quad}{2} \bullet \frac{3}{4}$

7. $\frac{1}{2} = \frac{\blacksquare}{10}$

8. $\frac{3}{4} = \frac{\blacksquare}{8}$

9. $\frac{1}{4} = \frac{\blacksquare}{12}$

10. $\frac{2}{3} = \frac{\blacksquare}{12}$

$\frac{1}{2} \bullet \frac{6}{10}$

$\frac{3}{4} \bullet \frac{5}{8}$

$\frac{1}{4} \bullet \frac{5}{12}$

$\frac{2}{3} \bullet \frac{7}{12}$

11. $\frac{1}{3} = \frac{\blacksquare}{15}$

12. $\frac{3}{5} = \frac{\blacksquare}{10}$

13. $\frac{7}{8} = \frac{\blacksquare}{16}$

14. $\frac{5}{7} = \frac{\blacksquare}{14}$

$\frac{1}{3} \bullet \frac{4}{15}$

$\frac{3}{5} \bullet \frac{7}{10}$

$\frac{7}{8} \bullet \frac{13}{16}$

$\frac{5}{7} \bullet \frac{9}{14}$

Think of the equivalent fractions in eighths.
Then write the fractions in order.

15. $\frac{7}{8}, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \frac{5}{8}$

PRACTICE

Compare the fractions. Write $>$ or $<$ for \bullet .

1. $\frac{5}{6} \bullet \frac{3}{6}$

2. $\frac{11}{13} \bullet \frac{9}{13}$

3. $\frac{19}{23} \bullet \frac{21}{23}$

4. $\frac{14}{15} \bullet \frac{15}{15}$

Find the missing number for \blacksquare . Write $>$ or $<$ for \bullet .

5. $\frac{3}{7} = \frac{\blacksquare}{14}$

6. $\frac{4}{5} = \frac{\blacksquare}{15}$

7. $\frac{3}{5} = \frac{\blacksquare}{10}$

8. $\frac{1}{2} = \frac{\blacksquare}{16}$

$\frac{3}{7} \bullet \frac{2}{14}$

$\frac{4}{5} \bullet \frac{14}{15}$

$\frac{3}{5} \bullet \frac{8}{10}$

$\frac{1}{2} \bullet \frac{9}{16}$

Think of equivalent fractions with the same denominators.

Write $<$ or $>$ for \bullet .

9. $\frac{1}{2} \bullet \frac{1}{4}$

10. $\frac{3}{5} \bullet \frac{7}{10}$

11. $\frac{4}{6} \bullet \frac{1}{2}$

12. $\frac{5}{6} \bullet \frac{14}{18}$

13. $\frac{7}{12} \bullet \frac{4}{6}$

14. $\frac{1}{2} \bullet \frac{3}{4}$

15. $\frac{9}{14} \bullet \frac{4}{7}$

16. $\frac{1}{3} \bullet \frac{3}{6}$

Think of equivalent fractions with the same denominator.

Write the fractions in order, starting with the smallest.

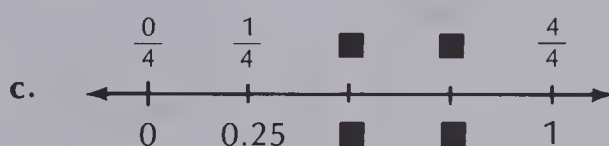
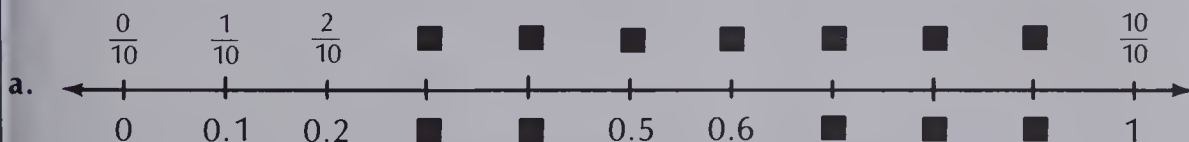
17. $\frac{4}{5}, \frac{2}{5}, \frac{3}{10}$

18. $\frac{2}{4}, \frac{7}{16}, \frac{1}{4}$

19. $\frac{7}{10}, \frac{15}{20}, \frac{6}{10}$

Number Line Patterns

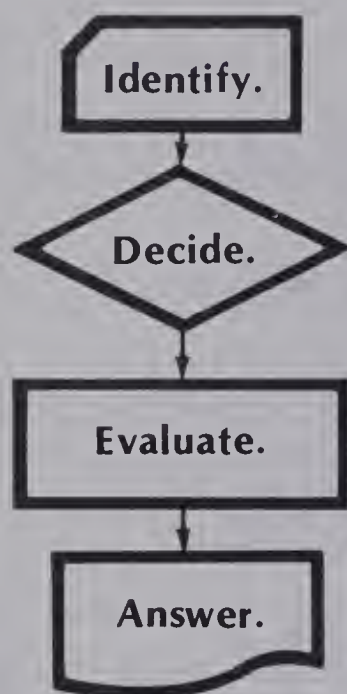
Copy the number lines. Write the missing fractions and decimals.



Missing Facts



A public library receives many different nature magazines each month. How many nature magazines does it receive in one year?



many magazines
12 months in a year

$\times ?$



EXERCISES

Solve the problem if it has the necessary facts.

Write a *missing fact* if it doesn't.

1. A Canadian flag is twice as long as it is wide. If the flag is 1.5 m wide, how long is it?
2. The highest temperature on record for Prince Edward Island is 34.4°C . How much higher is this than their usual July temperature?
3. In the first 100 years after Confederation, Canada had 20 Governor Generals. About how long was each appointment?
4. Victoria has about $\frac{1}{4}$ as much snow as Whitehorse. About how much snow does Victoria get in a year?
5. In 1977, the R.C.M.P. had about 19 000 members. How many more did they have in 1982?

PRACTICE

Solve. If a problem is missing a fact, invent a suitable fact and solve the problem.

1. An apartment building has 18 apartments on each floor. How many apartments are there in the building?
2. John ate $\frac{1}{4}$ of 20 freshly baked cookies. How many did he eat?
3. A fish tank is 50 cm long, 30 cm wide, and 30 cm high. What is its volume?
4. Mrs. Bovier divided her class into groups of six. How many groups did she make?
5. Norma filled her gas tank and went for a drive.
She used half the gas in the tank.
How many litres of gas did she use?

REVIEW

Find the missing terms.

N14

1. $\frac{3}{4} = \frac{6}{\blacksquare}$

2. $\frac{2}{3} = \frac{\blacksquare}{9}$

3. $\frac{6}{\blacksquare} = \frac{1}{2}$

N15

4. $\frac{1}{10} = \frac{\blacksquare}{20} = \frac{\blacksquare}{40}$

5. $\frac{12}{36} = \frac{\blacksquare}{3}$

6. $\frac{12}{36} = \frac{2}{\blacksquare}$

N16

7. $\frac{2}{5} = \frac{\blacksquare}{10} = \blacksquare.\blacksquare$

8. $\frac{6}{25} = \frac{\blacksquare}{100} = \blacksquare.\blacksquare\blacksquare$

9. $\frac{1}{4} = \frac{\blacksquare}{100} = \blacksquare.\blacksquare\blacksquare$

Find the missing number for \blacksquare . Write $<$ or $>$ for \bullet .

N17

10. $\frac{1}{2} = \frac{\blacksquare}{18}$

11. $\frac{2}{7} = \frac{\blacksquare}{14}$

12. $\frac{3}{5} = \frac{\blacksquare}{20}$

$\frac{1}{2} \bullet \frac{7}{18}$

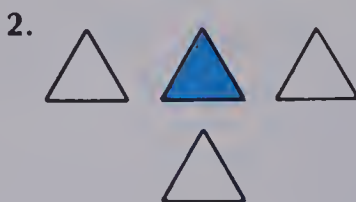
$\frac{2}{7} \bullet \frac{3}{14}$

$\frac{3}{5} \bullet \frac{9}{20}$

TEST

UNIT 7

What fraction of the set is shaded?



Copy and complete.

4. $\frac{1}{5} \times 20 = \blacksquare$

5. $\frac{1}{2} \times 16 = \blacksquare$

6. $\frac{1}{3}$ of 12 = \blacksquare

7. $\frac{1}{4}$ of 24 = \blacksquare

8. $\frac{2}{3} \times 18 = \blacksquare$

9. $\frac{2}{5} \times 10 = \blacksquare$

Write the ratio.

10. 6 girls to 10 boys

11. 4 ants to 3 bees

Copy and complete.

12. $\frac{3}{4} = \frac{3 \times 4}{4 \times 4} = \frac{\blacksquare}{\blacksquare}$

13. $\frac{21}{35} = \frac{21 \div 7}{35 \div 7} = \frac{\blacksquare}{\blacksquare}$

Find the missing term.

14. $\frac{2}{4} = \frac{\blacksquare}{2}$

15. $\frac{1}{5} = \frac{5}{\blacksquare}$

16. $\frac{6}{\blacksquare} = \frac{2}{3}$

17. $\frac{\blacksquare}{5} = \frac{6}{10}$

Write equivalent fractions.

18. $\frac{4}{5} = \frac{\blacksquare}{10} = \frac{\blacksquare}{20}$

19. $\frac{3}{2} = \frac{\blacksquare}{6} = \frac{\blacksquare}{12}$

20. $\frac{24}{30} = \frac{\blacksquare}{15} = \frac{\blacksquare}{5}$

Write as decimals.

21. $\frac{2}{5} = 0.\blacksquare$

22. $\frac{3}{10} = 0.\blacksquare$

23. $\frac{1}{100} = 0.\blacksquare\blacksquare$

24. $\frac{1}{2} = 0.\blacksquare\blacksquare$

Compare the fractions. Write < or >.

25. $\frac{4}{8} \bullet \frac{5}{8}$

26. $\frac{3}{2} \bullet \frac{2}{2}$

27. $\frac{5}{10} \bullet \frac{3}{5}$

28. $\frac{3}{8} \bullet \frac{3}{4}$

COMPUTATION: \times , \div

Multiply.

$$\begin{array}{r} 1. \quad 570 \\ \times 32 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 640 \\ \times 27 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 850 \\ \times 45 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 790 \\ \times 86 \\ \hline \end{array}$$

Estimate the product.

$$\begin{array}{r} 5. \quad 603 \\ \times 32 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 795 \\ \times 41 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 806 \\ \times 69 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 598 \\ \times 89 \\ \hline \end{array}$$

Multiply.

$$\begin{array}{r} 9. \quad 364 \\ \times 73 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 508 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 273 \\ \times 58 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 702 \\ \times 67 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad \$6.17 \\ \times 25 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad \$8.95 \\ \times 82 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad \$1.48 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad \$7.09 \\ \times 86 \\ \hline \end{array}$$

Divide.

$$17. \quad 17 \overline{)142}$$

$$18. \quad 51 \overline{)342}$$

$$19. \quad 22 \overline{)163}$$

$$20. \quad 75 \overline{)438}$$

$$21. \quad 35 \overline{)241}$$

$$22. \quad 42 \overline{)306}$$

$$23. \quad 16 \overline{)123}$$

$$24. \quad 74 \overline{)322}$$

$$25. \quad 10 \overline{)570}$$

$$26. \quad 30 \overline{)2640}$$

$$27. \quad 80 \overline{)1920}$$

$$28. \quad 70 \overline{)4190}$$

$$29. \quad 48 \overline{)1834}$$

$$30. \quad 62 \overline{)4675}$$

$$31. \quad 91 \overline{)1185}$$

$$32. \quad 26 \overline{)1900}$$

$$33. \quad 59 \overline{)3485}$$

$$34. \quad 83 \overline{)3154}$$

$$35. \quad 35 \overline{)1515}$$

$$36. \quad 78 \overline{)1425}$$

Solve.

37. Joan's building has 840 apartments in all. There are 42 apartments on each floor and 2 elevators. How many floors of apartments are in the building?

UNIT 8

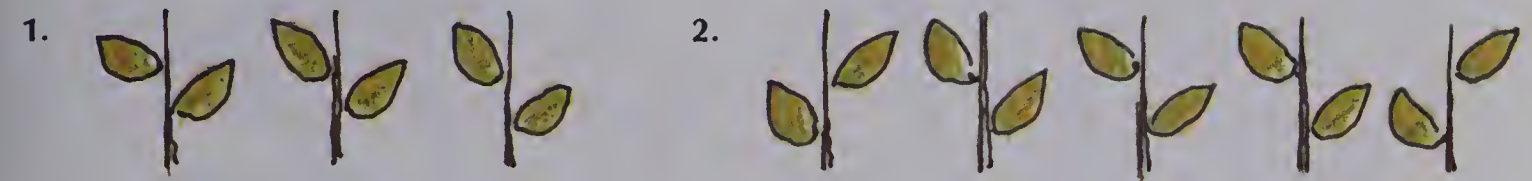
GRAPHS



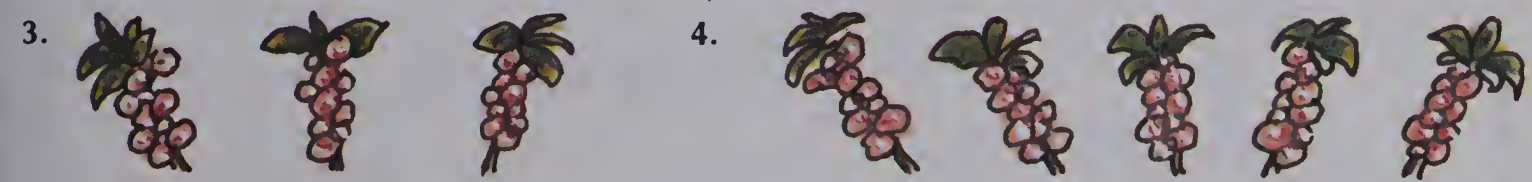
Forest Multiplication

Write a multiplication equation for each picture.

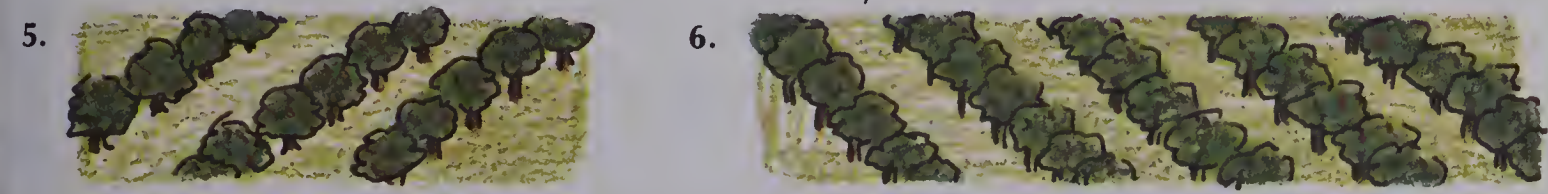
Two leaves on each stem. How many leaves?



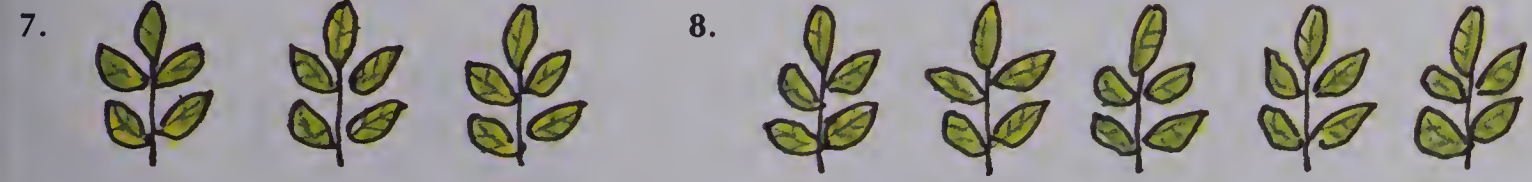
Ten flowers on each stem. How many flowers?



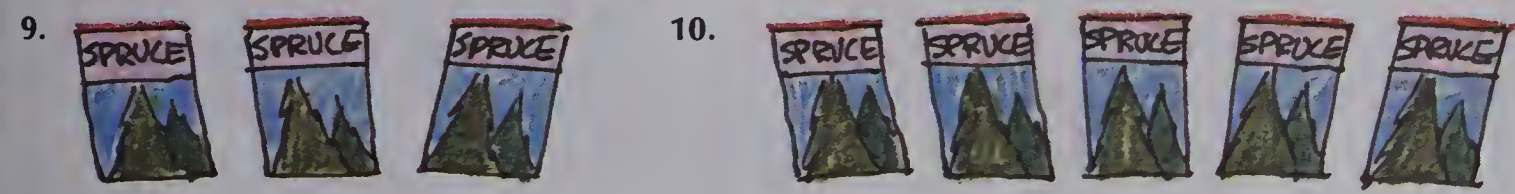
One hundred fruit trees in each row. How many trees?



Five leaves on each stem. How many leaves?



Fifty seeds in each package. How many seeds?

















Five hundred seedling trees in each row. How many seedling trees?



Pictographs

Average Leaf Length



White Oak	   
Bur Oak	    
Red Oak	   

Each  represents 5 cm of length.











Red Oak

EXERCISES

1. What does  represent?
2. What is the average length of the White Oak leaf?
3. What does  represent?
4. What is the average length of the Red Oak leaf?
5. What is the difference in average lengths of Bur Oak and White Oak leaves?

Pine Needles in a Cluster

Lodgepole	
White	  
Jack	
Ponderosa	 

Each  represents two needles.

























Jack Pine

6. Which pine tree has the largest number of needles growing in a cluster?
7. Which pine trees have the same number of needles growing in a cluster?
8. How many needles grow in one cluster on the Ponderosa Pine?



PRACTICE

Average Leaf Width

Sugar Maple	  
Red Maple	  
Silver Maple	   
Striped Maple	   
Bigleaf Maple	      

Each  represents 4 cm in width.

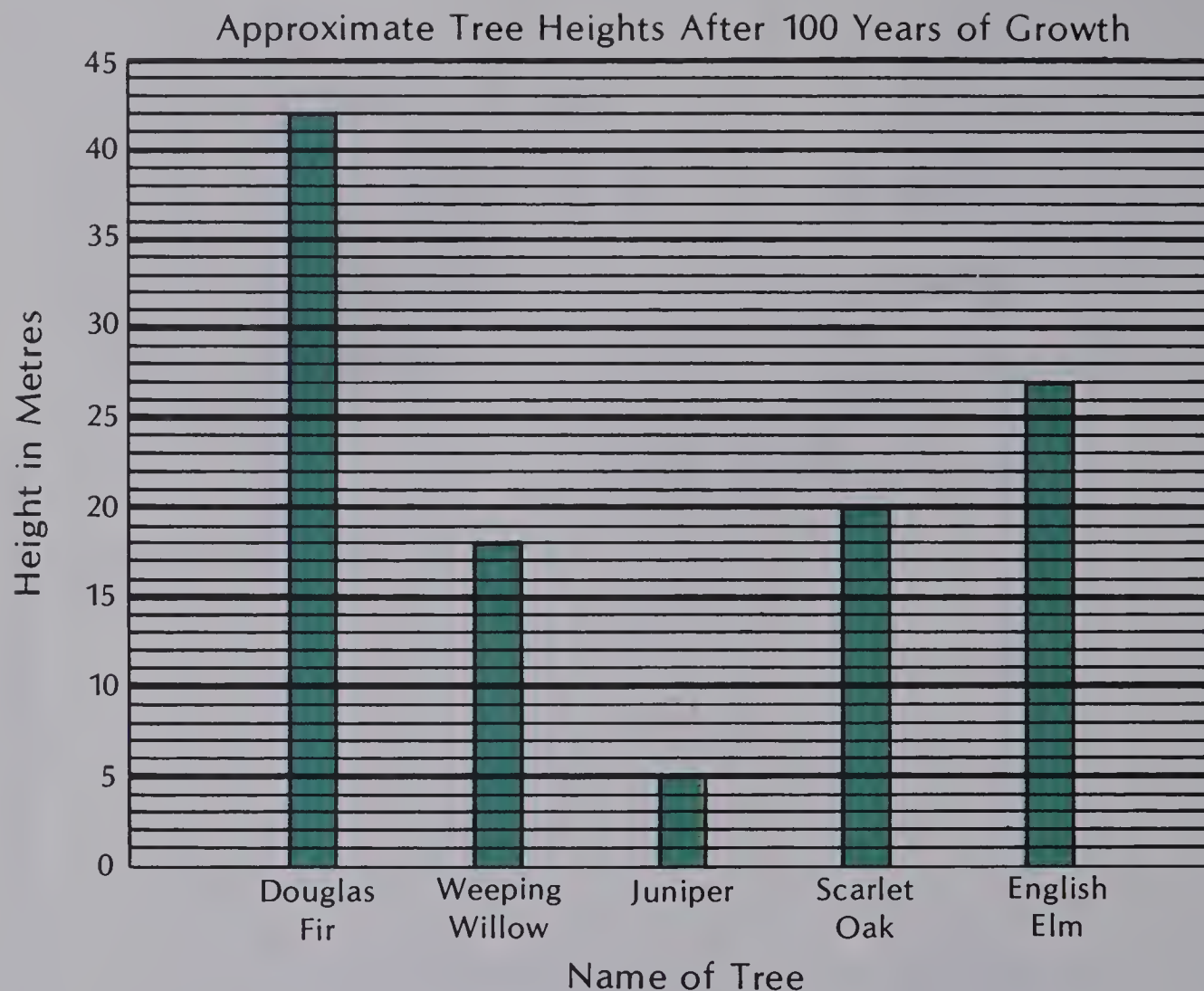


1. What does  represent?
2. What is the average width of the Red Maple leaf?
3. What is the average width of the Bigleaf Maple leaf?
4. What does  represent?
5. What is the average width of the Sugar Maple leaf?
6. What is the difference in average widths of Silver Maple and Striped Maple leaves?
7. Which leaf is the largest?

Heads and Feet

A group of boys and dogs were playing at a park. There were 22 heads and 72 feet in the group. Draw a picture graph showing the number of boys and the number of dogs at the park.

Bar Graphs



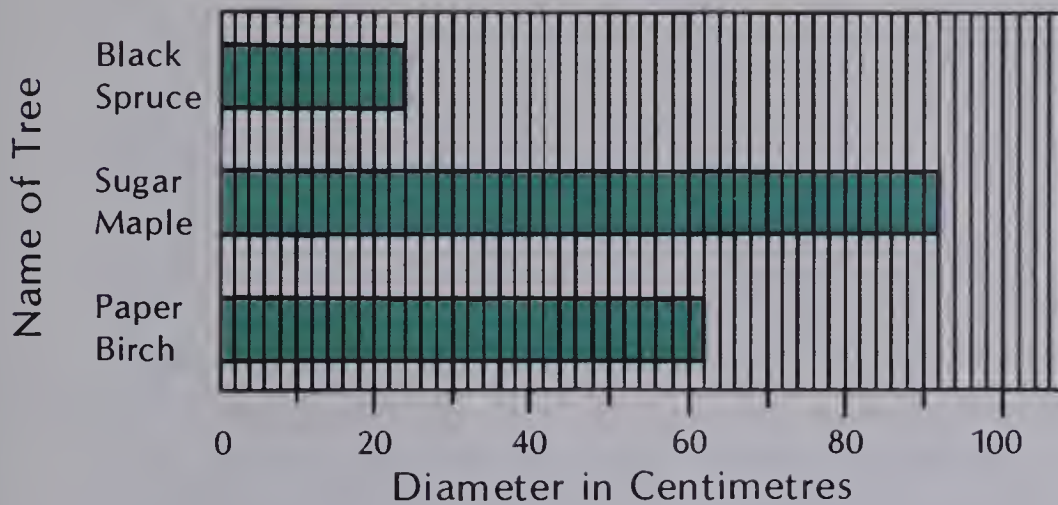
EXERCISES

Use the bar graph to answer these questions.

1. How many different kinds of trees are represented in the graph?
2. What unit of measure is used to report tree height?
3. Which of the trees is the smallest?
4. What is the height of the Douglas Fir after 100 years of growth?
5. Which tree grows to over twice the size of the Scarlet Oak?
6. What is the height of the English Elm after 100 years of growth?

PRACTICE

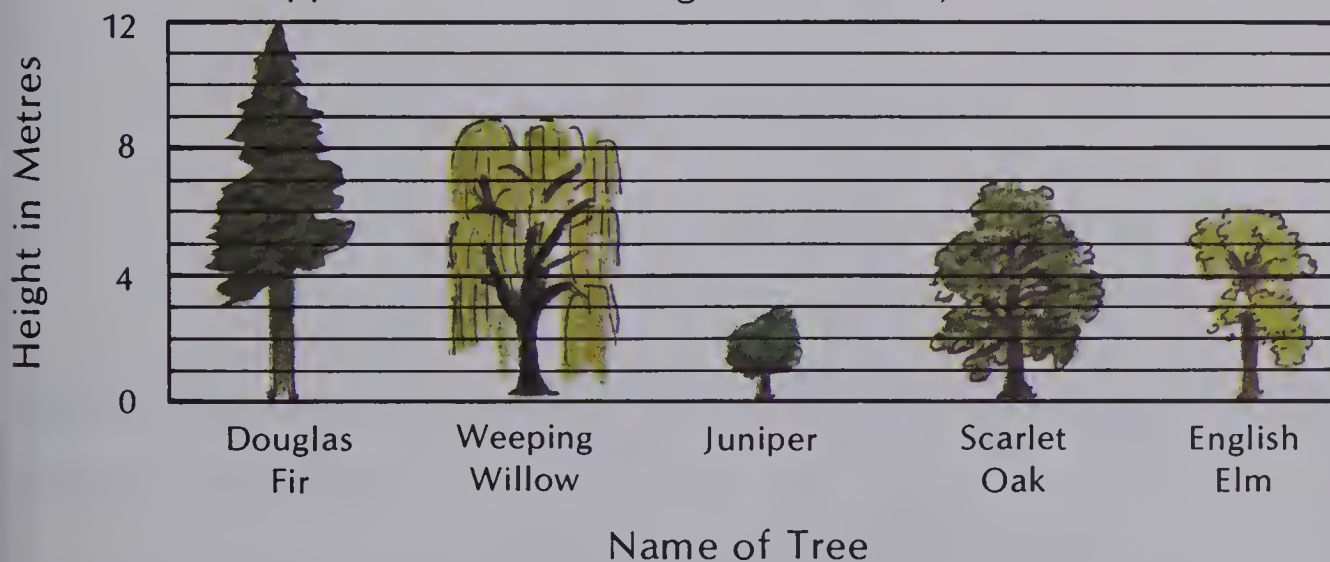
Approximate Diameters of Tree Trunks After 100 Years Growth



1. What unit of measure is used to report tree trunk diameter?
2. What is the Black Spruce's trunk diameter after 100 years?
3. Which tree has the largest trunk diameter when fully grown?
4. What is the difference in trunk diameters between the Paper Birch and the Sugar Maple?

A Picture Graph

Approximate Tree Heights After 15 years of Growth



1. What unit of measure is used to report tree height?
2. Which tree grows the tallest during the first 15 years?
3. What is the height of the Scarlet Oak after 15 years?
4. After 15 years, how much taller than the Elm is the Willow?

Line Graphs

Growth of a Black Poplar



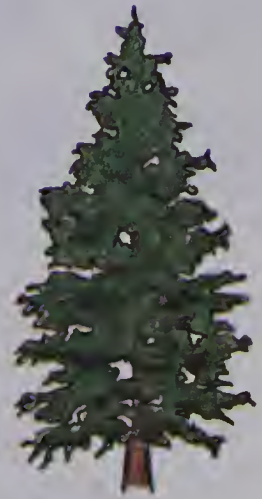
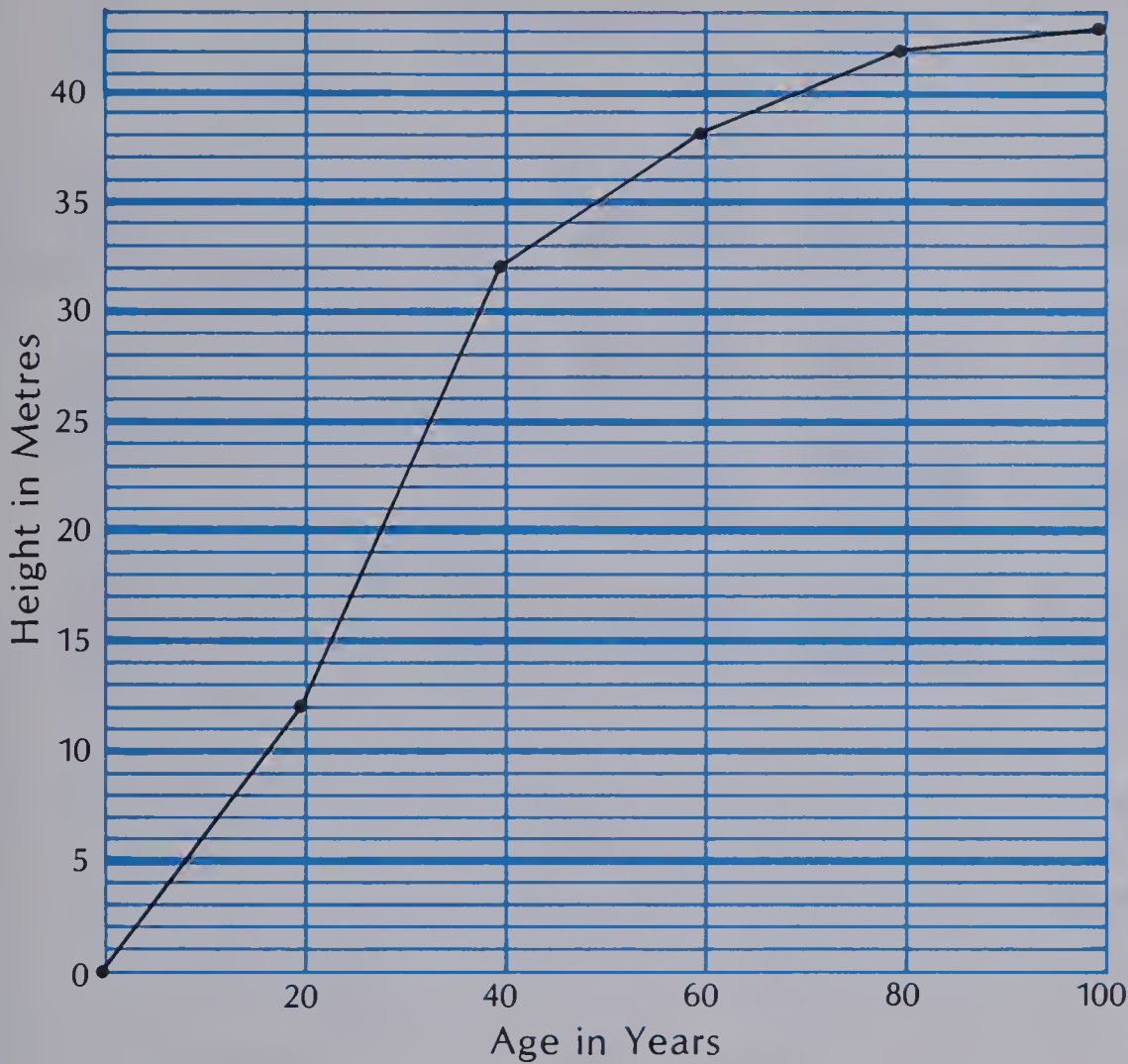
EXERCISES

Use the line graph to answer these questions.

1. What unit of measure is used to report the height?
2. How often is the tree's height reported?
3. What is the height of the tree after 10 years?
4. What is the height of the tree after 50 years?
5. During what 10 year period does the tree grow the most?
6. At what age does the growth seem to level off?
7. Approximately how many metres does the tree grow between 20 and 30 years?
8. Approximately how many metres does the tree grow between 10 and 40 years?

PRACTICE

Growth of a Balsam Fir Tree



1. How often is the tree's height reported?
2. What is the height of the tree after 40 years?
3. What is the height of the tree after 100 years?
4. During what 20 year period does the tree grow the most?
5. Approximately how many metres does the tree grow between 20 and 40 years?

Scotch Pines

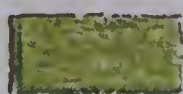
With graph paper, make a line graph to show the growth of a Scotch Pine tree.

Age in Years	0	10	20	30	40	50	60
Height in Metres	0	5	10	14	18	21	24

Coordinates

Lettered trees show the locations of the different kinds of trees.

3rd Avenue



4th Avenue



5th Avenue



6th Avenue




7th Avenue

8th Street

7th Street

6th Street

5th Street

 is the Birch tree.

The **coordinates**, or **ordered pair**, describing its location are:

(7th Street, 4th Avenue).

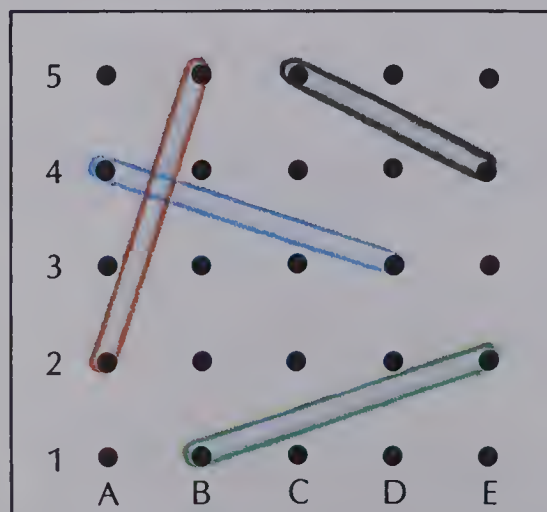
Name the coordinate for the street *first*.

Then name the coordinate for the avenue.








EXERCISES

Write the coordinates describing the location of the tree.

1. Poplar (A)
2. Fir (B)
3. Oak (D)
4. Spruce (E)
5. Aspen (F)
6. Ash (G)
7. The coordinates for the Juniper are (7th Street, 6th Avenue). What letter do you find at this location?



Each elastic is around two pegs. Name the coordinates for each peg, giving the letter first.

8. red elastic: (A, 2) and 
9. blue elastic:  and 
10. black elastic:  and 
11. green elastic:  and 

PRACTICE



Name the tree at each location.

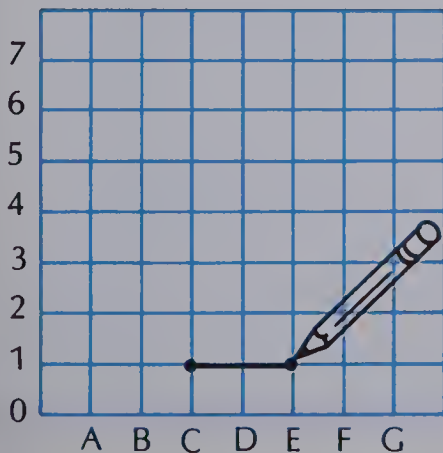
1. (B, 2)
2. (D, 4)
3. (A, 1)
4. (C, 3)
5. (D, 1)
6. (B, 4)

Write the coordinates describing the location of these trees.

7. Dogwood
8. Cherry
9. Ash
10. Hickory
11. Elm
12. Cedar

Coordinate Mystery

Letter and number a grid on graph paper as shown. Make a dot for each ordered pair. Join the dots in order with a straight line.



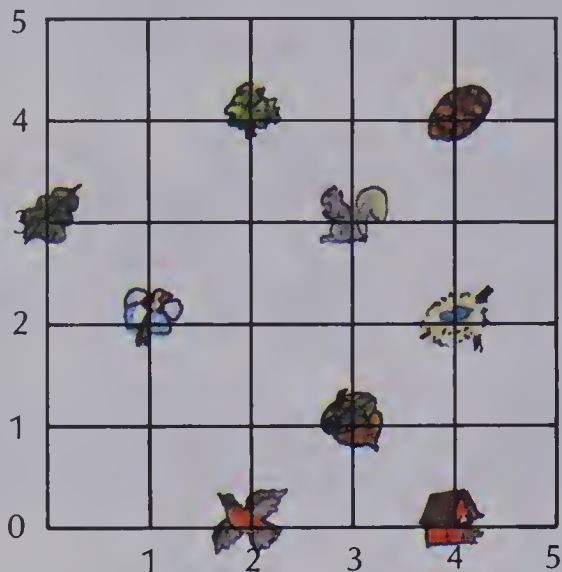
1. (C, 1)
2. (E, 1)
3. (E, 2)
4. (G, 2)
5. (F, 3)
6. (G, 3)
7. (E, 5)
8. (F, 5)
9. (D, 7)
10. (B, 5)
11. (C, 5)
12. (A, 3)
13. (B, 3)
14. (A, 2)
15. (C, 2)
16. (C, 1)

Coordinates

An ordered pair describes the location of a point on a grid.

The order of the pair must be:

(units **across**, units **up**)



The coordinates describing the location of the birdhouse are:
(across 4, up 0) or (4, 0).

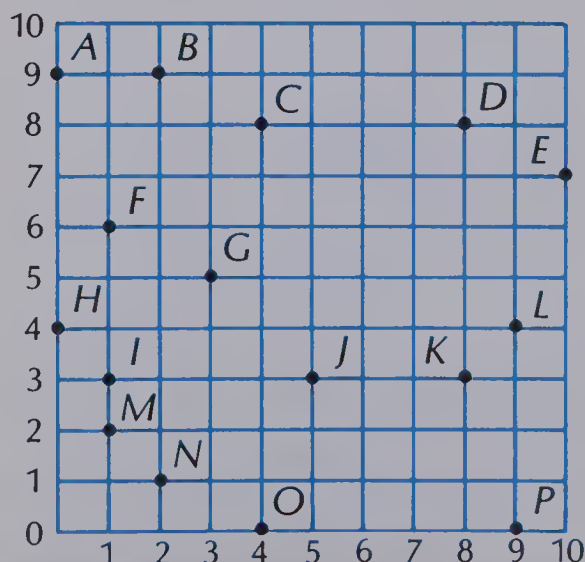
EXERCISES

Name the object at each location in the above 5 by 5 grid.

1. (3, 1)
2. (4, 4)
3. (0, 3)
4. (1, 2)

Use coordinates to describe the location of each object.

5. tree
6. squirrel
7. nest
8. bird



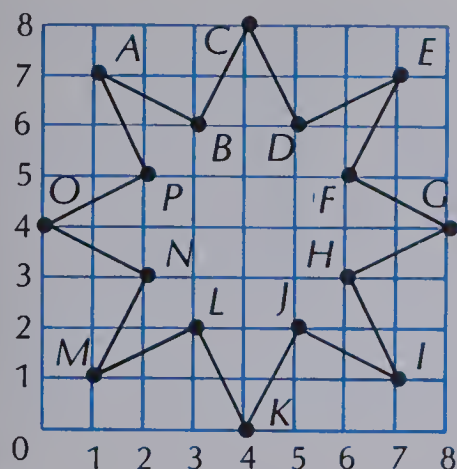
Write the ordered pair for the location of each letter on the 10 by 10 grid.

9. B
10. L
11. D
12. I
13. G
14. J
15. A
16. P

What letter is at each location?

17. (1, 6)
18. (10, 7)
19. (8, 3)
20. (4, 8)
21. (1, 2)
22. (2, 1)
23. (4, 0)
24. (0, 4)

PRACTICE



Write the coordinates for the location of each letter on the 8 by 8 grid.

1. P 2. F 3. M 4. J
5. K 6. E 7. L 8. G

What letter is at each location?

9. (7, 1) 10. (2, 3) 11. (1, 7) 12. (4, 8)
13. (3, 6) 14. (6, 3) 15. (0, 4) 16. (5, 6)

17. On a 10 by 10 grid, make a dot for each ordered pair.

Join them in the order in which they are given.

(5, 9) (6, 7) (7, 8) (7, 6) (9, 6) (8, 5) (10, 4) (8, 3) (9, 2) (6, 2) (7, 1)
 (6, 1) (6, 0) (4, 0) (4, 1) (3, 1) (4, 2) (1, 2) (2, 3) (0, 4) (2, 5) (1, 6)
 (3, 6) (3, 8) (4, 7) (5, 9) Stop!

REVIEW

GR 1

City Schools

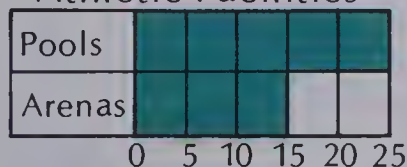
Elementary	■ ■ ■ ■
Secondary	■ ■

■ = 50 schools

1. How many elementary schools?
2. How many schools in all?

GR 2

Athletic Facilities

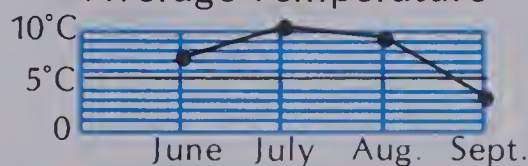


3. How many arenas?
4. How many athletic facilities in all?
5. How many more pools than arenas?

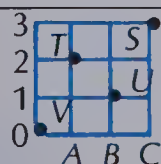
GR 3

6. What is the average temperature for each month?

Average Temperature



GR 4



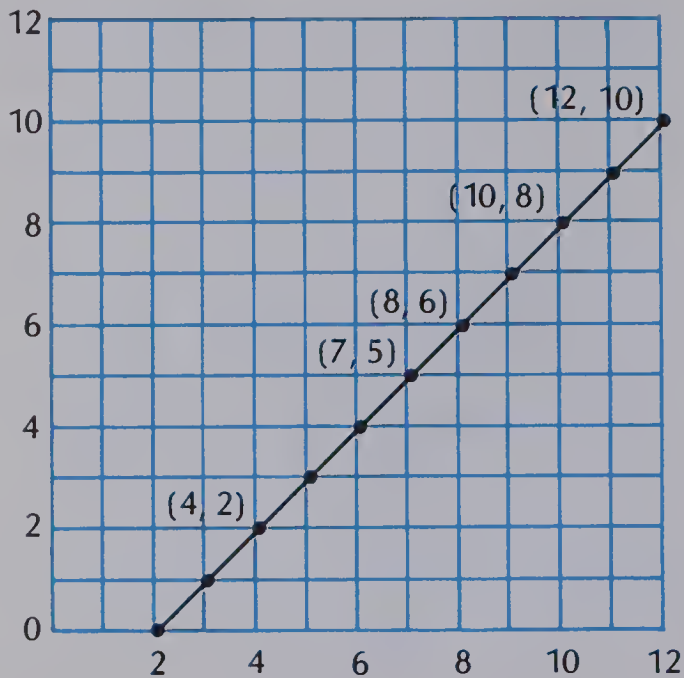
Write the coordinates describing each location on the grid.

7. S 8. T 9. U 10. V

GR 5

11. Explain the meaning of each number in the pair (4, 7).

Predictable Pairs



Rule: $- 2$	
in	out
12	10
10	8
8	6
7	5
4	2
2	?

The **Rule: $- 2$** forms each ordered pair.

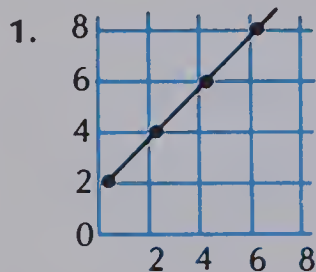
$12 - 2 = 10$ $(12, 10)$
 $10 - 2 = 8$ $(10, 8)$
 $8 - 2 = 6$ $(8, 6)$
 $7 - 2 = 5$ $(7, 5)$
 $4 - 2 = 2$ $(4, 2)$

The line on the graph helps predict the second coordinate.

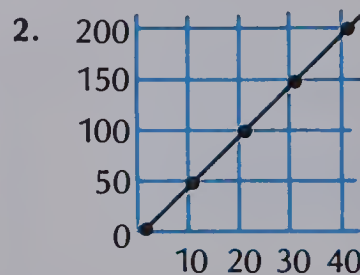
$(2, 0)$

EXERCISES

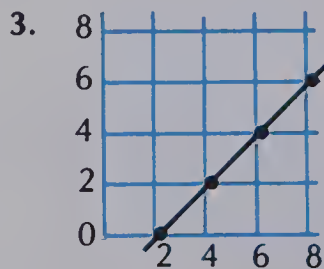
Use the graph to complete the chart.



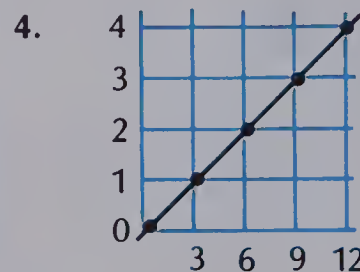
Rule: $+ 2$	
in	out
2	
6	
0	



Rule: $\times 5$	
in	out
10	
40	
20	



Rule:	
in	out
8	
4	
2	



Rule:	
in	out
3	
12	
9	

Copy and complete the chart.

5.

Rule: $\times 2$	
in	out
8	
12	
16	

6.

Rule: $\div 9$	
in	out
36	
72	
144	

7.

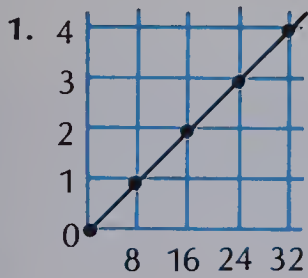
Rule: $\div 40$	
in	out
160	
480	
600	

8.

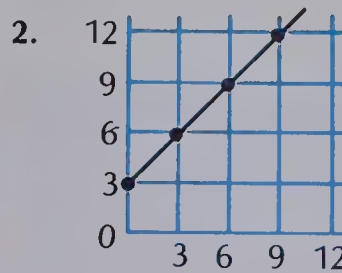
Rule: $\div 2$	
in	out
4	
96	
156	

PRACTICE

Use the graph to complete the chart.



Rule:	
in	out
16	
32	
8	



Rule:	
in	out
3	
6	
9	

Copy and complete the chart.

3. Rule: $\times 10$

in	out
1	
3	
7	

4. Rule: $\div 9$

in	out
981	
459	
72	

5. Rule: $+ 3.25$

in	out
12	
17	
22	

6. Rule: $\times 2.2$

in	out
2	
8	
10	

7. Rule: $\times 2, + 1$

in	out
9	
12	
15	

8. Rule: $+ 1, \div 2$

in	out
19	
27	
31	

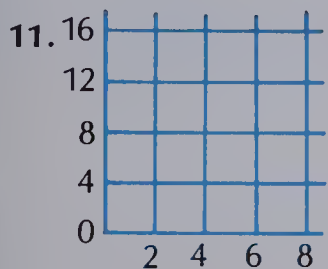
9. Rule: $- 3, \div 5$

in	out
8	
23	
38	

10. Rule: $+ 4, \times 3$

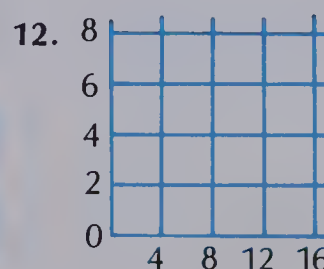
in	out
6	
9	
12	

Copy and complete the chart as you complete the graph with a straight line.



Rule: $+ 2, \div 2$

in	out
2	
8	
6	



Rule: $\div 4, + 4$

in	out
8	
4	
20	

What Comes Next?

Write the next three numbers and the rule for each.

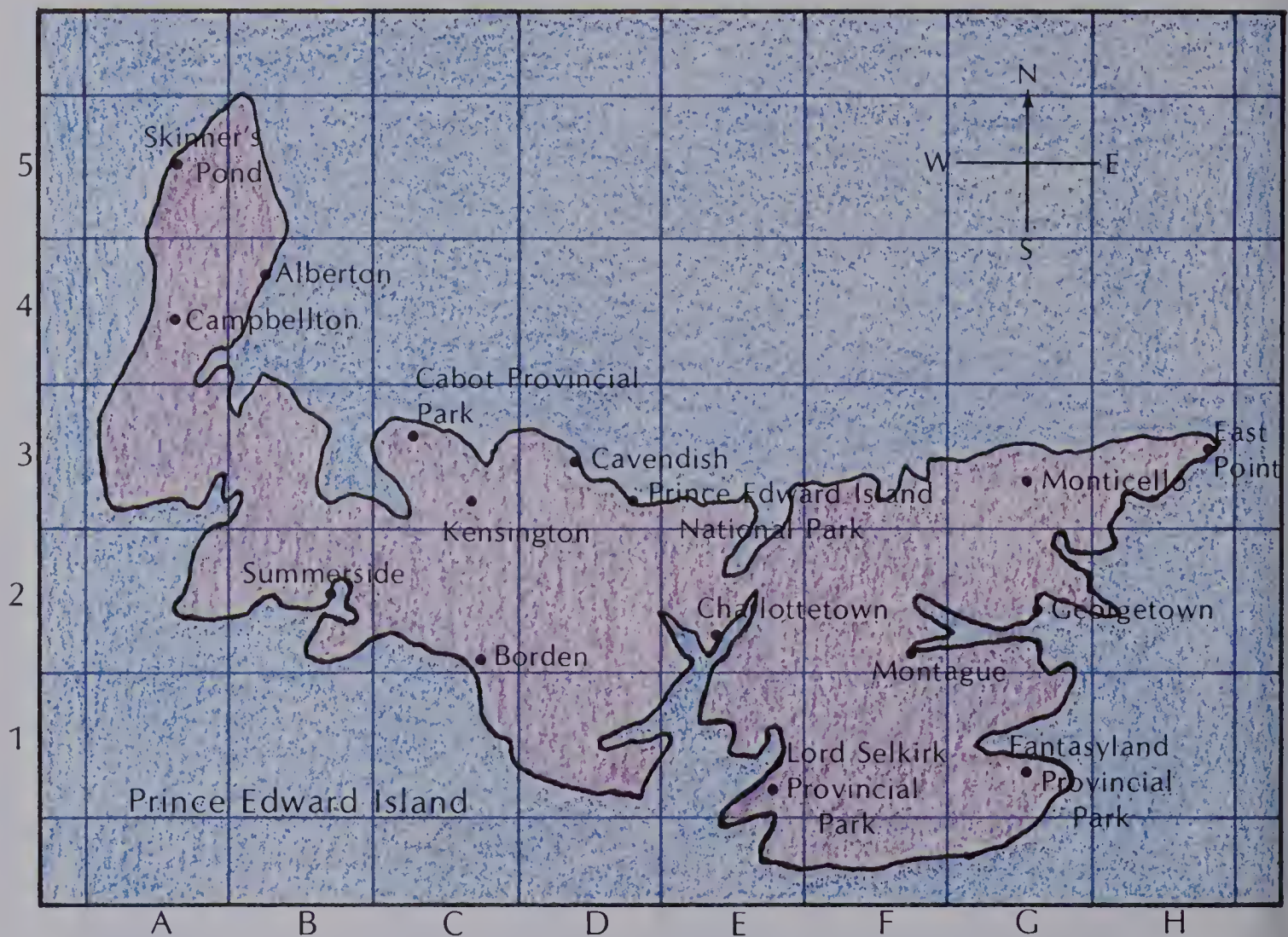
a. 128, 64, 32, 16, 8, , , b. 5, 15, 10, 20, 15, , ,

c. 1, 4, 9, 16, 25, , , d. 7, 11, 13, 17, 19, , ,

e. 42, 35, 38, 31, 34, , , f. 3, 7, 15, 31, 63, , ,

Map Grids

An ordered pair describes a map location.
Charlottetown is located at (E, 2).



EXERCISES

Write the ordered pair that describes the location of each place.

- | | | |
|--------------------------|-------------------------|---------------------------------|
| 1. Summerside | 2. Montague | 3. Campbellton |
| 4. Cabot Provincial Park | 5. P.E.I. National Park | 6. Lord Selkirk Provincial Park |
| 7. Monticello | 8. Alberton | 9. Kensington |

Write the name of the place found at these locations.

- | | | |
|------------|------------|------------|
| 10. (A, 5) | 11. (C, 2) | 12. (G, 1) |
| 13. (H, 3) | 14. (G, 2) | 15. (D, 3) |

PRACTICE



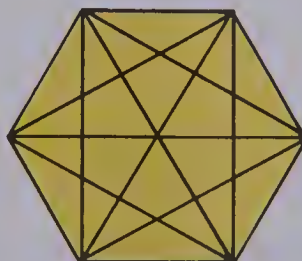
1. Name the street running east from (1, D) through (6, D).
2. Name the main road running north from (6, C) through (6, E).
3. What road runs east along the north side of the Bow River, (1, C) to (6, C)?

Write the coordinate location of each.

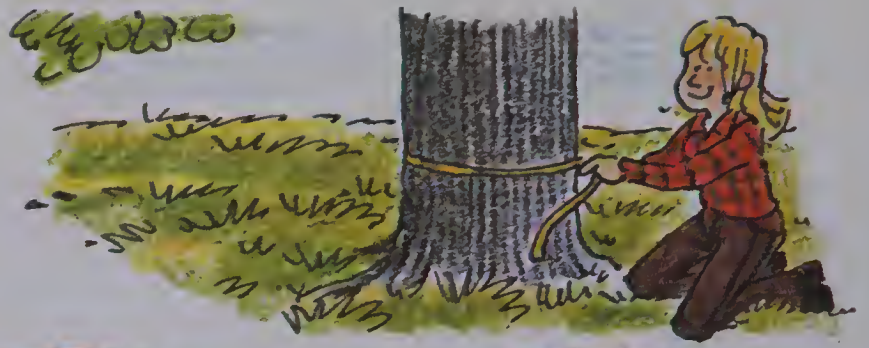
4. Calgary Tower (central)
5. Univ. of Calgary (N.W.)
6. 15 St. N.E.
7. Victoria Park (S.E.)
8. intersection of Richmond Rd and 17 Ave. S.W.
9. intersection of Blackfoot Trail and 9 Ave. S.E.

Crossroads

How many triangles can you find in the diagram?



Circles



Circumference is the *distance around* a circle.



Diameter is the distance from rim to rim going through the centre.



Radius is the distance from the rim to the centre.

Circumference: $\text{Diameter} \times 3$ (approx.)
Diameter: $\text{Circumference} \div 3$ (approx.)

$\text{Diameter} = \text{Radius} \times 2$
 $\text{Radius} = \text{Diameter} \div 2$

EXERCISES

Find the radius of a circle whose diameter is:

1. 4 cm 2. 14 cm 3. 30 cm 4. 84 cm 5. 58 cm

Find the approximate circumference of a circle whose diameter is:

6. 1 cm 7. 5 cm 8. 12 cm 9. 25 cm 10. 36 cm

Find the approximate diameter of a circle whose circumference is:

11. 9 cm 12. 18 cm 13. 27 cm 14. 42 cm 15. 63 cm

Find the diameter of a circle whose radius is:

16. 3 cm 17. 5 cm 18. 22 cm 19. 18 cm 20. 49 cm

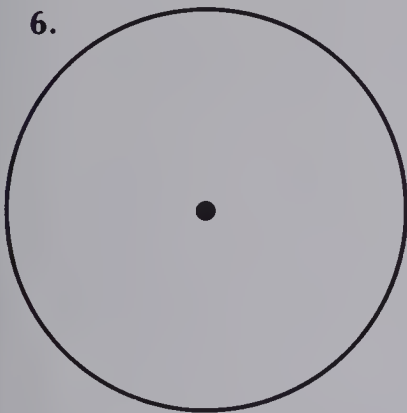
PRACTICE

Copy and complete the following chart.

	Circle	Circumference	Diameter	Radius
1.	A			2 cm
2.	B		10 cm	
3.	C			15 cm
4.	D		6.3 cm	
5.	E			2.4 cm

Measure the radius and diameter in centimetres.

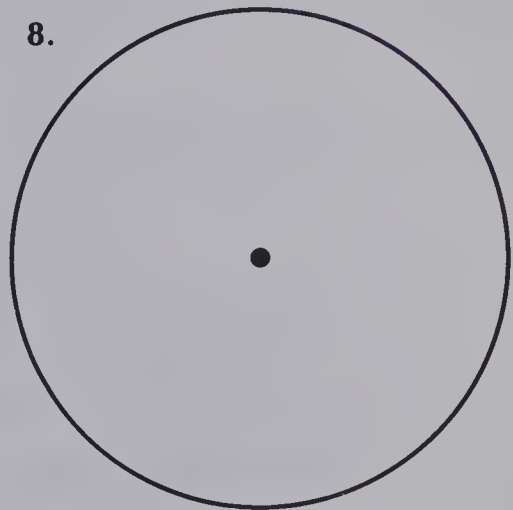
6.



7.



8.



Copy and complete the following chart.

	Tree	Circumference	Diameter (approx.)	Radius (approx.)
9.	Paper Birch	120 cm		
10.	White Cedar	108 cm		
11.	Tamarack	84 cm		

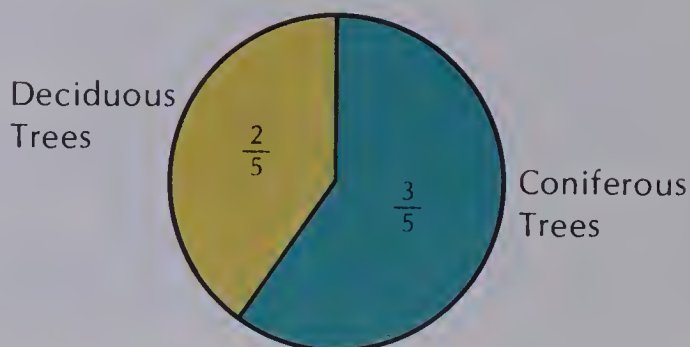
Flipping Out

There are 7 dimes in a row, all heads up.
Can you get the coins to show all tails
by turning them over 3 at a time?



Circle Graphs

All the trees of Canada's forests are represented in the circle graph.



2 out of every 5 trees are deciduous.



3 out of every 5 trees are coniferous.

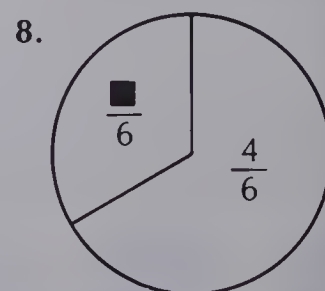
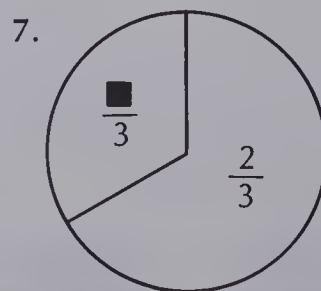
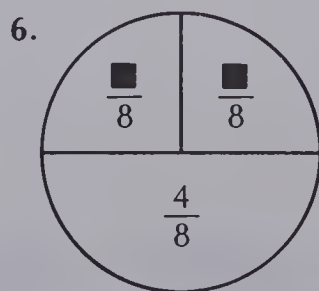
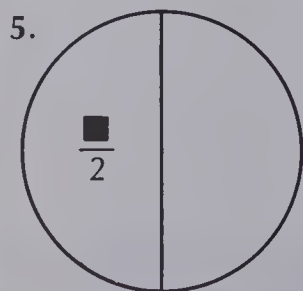


EXERCISES

Use the circle graphs to answer these questions.

1. Which classifications of trees are represented in the circle graphs?
2. Of all the trees in Canada, what fraction are deciduous?
3. What type of tree is more common in Canada?
4. Do the circle graphs tell you the number of coniferous trees in Canada?

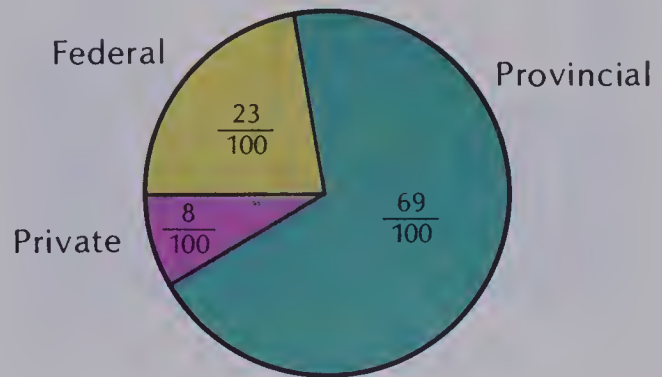
Copy and complete the missing fractional parts.



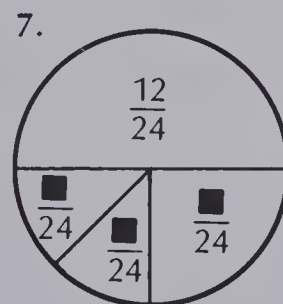
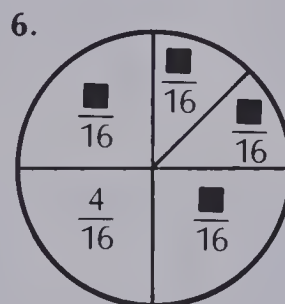
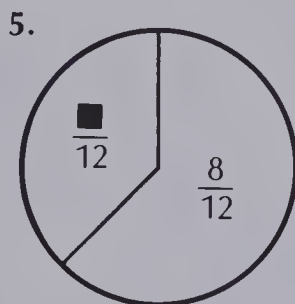
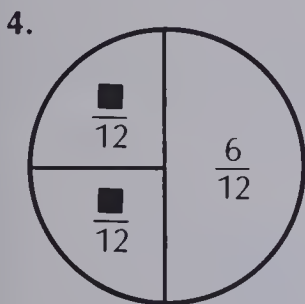
PRACTICE

- Who owns most of Canada's forest lands?
- Does the federal government own more or less forest land than the private sector?
- The provincial governments own 2, 3, 4, or 5 times the amount of forest land owned by the federal government?

Ownership of Canada's Forest Lands



Copy and complete the missing fractional parts.



Make a circle graph representing this information.

- There are 24 children in class; 12 have brown eyes, 12 have blue eyes.

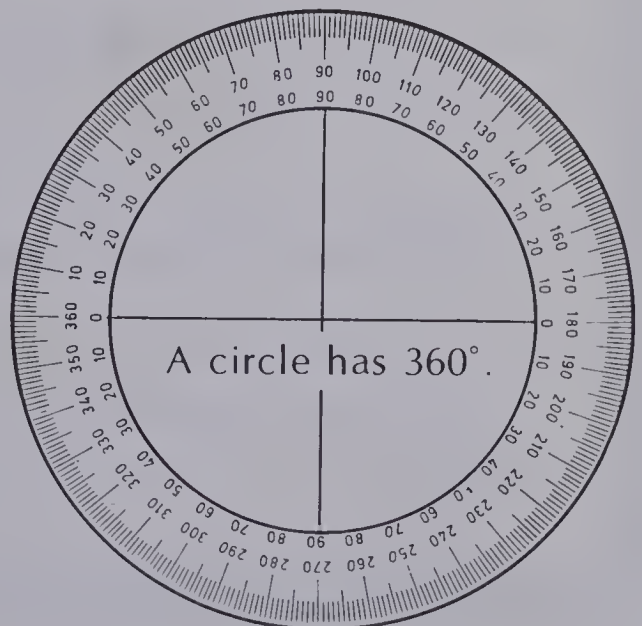
Protractor Circles

Make a circle with a protractor. Divide the circle into these fractional parts.

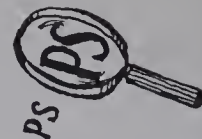
a. $\frac{180}{360}$, $\frac{90}{360}$, $\frac{90}{360}$

b. $\frac{90}{360}$, $\frac{90}{360}$, $\frac{45}{360}$, $\frac{45}{360}$

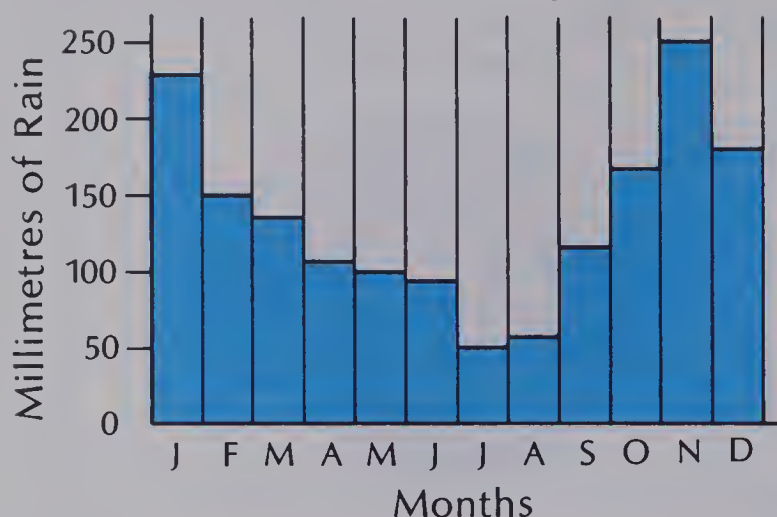
c. $\frac{180}{360}$, $\frac{10}{360}$, $\frac{40}{360}$, $\frac{20}{360}$, $\frac{20}{360}$



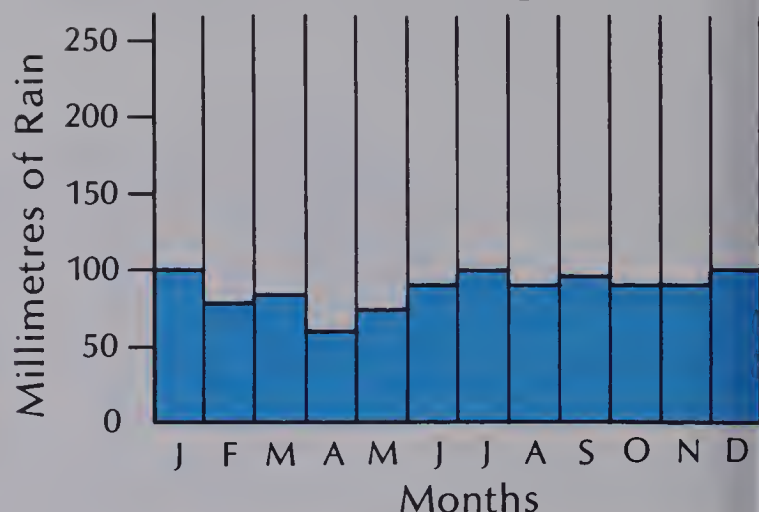
Problem Solving



Vancouver's Average Rainfall



Montreal's Average Rainfall

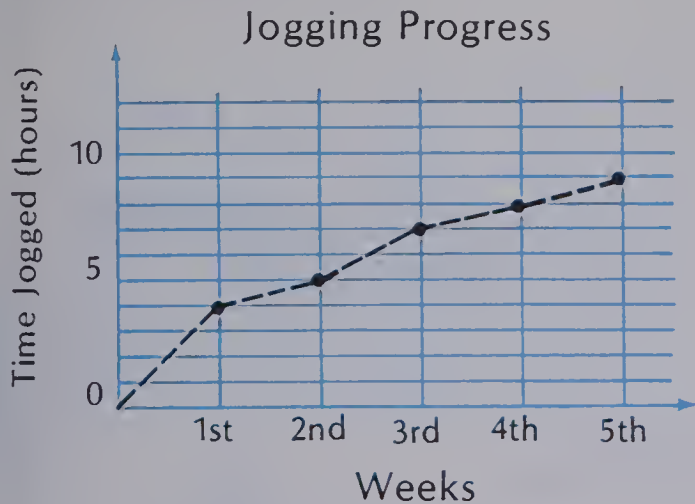


EXERCISES

Use the graphs to answer these questions.

1. What kind of graphs are used?
2. Which cities are represented by the graphs?
3. What unit of measure is used to report the rainfall?
4. In which month does Vancouver have the most rain? Estimate the amount of rain for that month.
5. Which city has more rain in January? Estimate the amount of rain each city has in January.
6. During which months does Montreal have more rain than Vancouver?
7. Estimate the total amount of rainfall Vancouver has for November, December, and January.
8. Estimate the total amount of rainfall Montreal has for November, December, and January.
9. During which spring month does Montreal have the least amount of rain?

PRACTICE



- How many weeks of jogging have been graphed so far?
- During which week did the jogger run for 8 h?
- About how much time was spent jogging each week?
- How long do you predict the jogger will run the 6th week?

REVIEW

Copy and complete each chart.

GR 6

1.

Rule: $\times 7$	
in	out
9	
18	

2.

Rule: $+ 6$	
in	out
98	
3.5	

3.

Rule: $- 4$	
in	out
102	
6.7	

4.

Rule: $\div 6$	
in	out
72	
216	

GR 7



What is at each location?

5. (A, 4) 6. (C, 1) 7. (A, 2) 8. (C, 4)

Write the ordered pair for each location.

9. pond 10. sunrise beach
11. log cabin

M14

What are the approximate diameter and radius for each circumference?

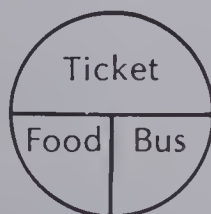
12. 24 cm

13. 42 cm

14. 72 cm

GR 8

Costs in
Going to
a Movie





- What costs the most?
- Compare the cost of the food and the bus.
- Compare costs of bus and ticket.

TEST

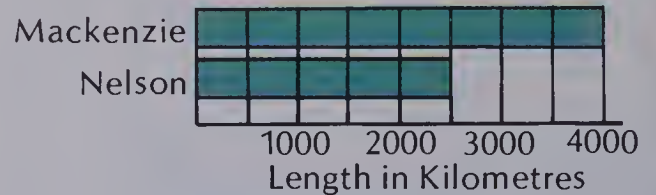
UNIT 8

1. How many trees are there of each kind?

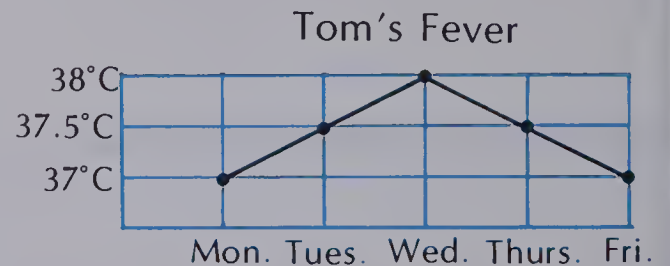
Trees In Our Orchard	
Apple Trees	
Cherry Trees	

 = 10 trees

2. How long is each river?

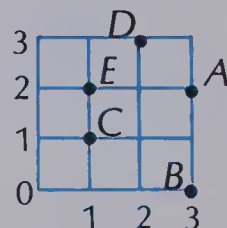


3. On what day was Tom's fever the highest?
 4. What was Tom's temperature on Thursday?



Write the coordinates describing each location on the grid.

5. A 6. B
 7. C 8. D
 9. E



Copy and complete each chart.

10.

Rule: $\div 5$	
in	out
450	
3.5	

11.

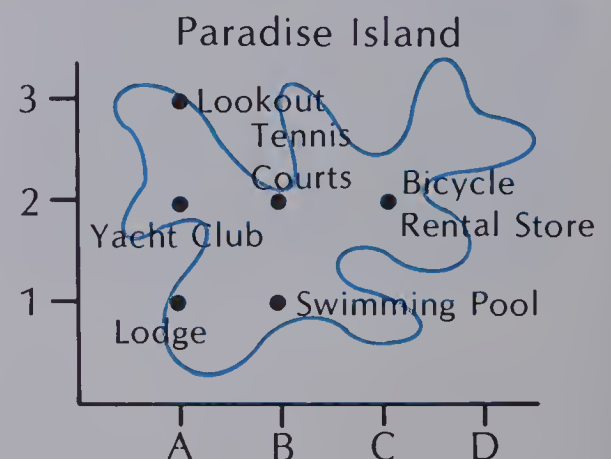
Rule: $\times 8$	
in	out
36	
3.2	

What is at each location?

12. (C, 2) 13. (B, 1) 14. (A, 2)

Write an ordered pair for each.

15. lookout 16. lodge
 17. tennis courts



Jo's Leisure Time



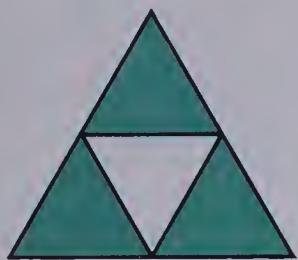
18. How is most of Jo's leisure time spent?
 19. Compare the time spent reading to the time spent outdoors.

Write as a decimal.

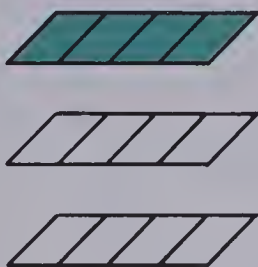
1. 3 tenths 2. 29 hundredths 3. 1 hundredth 4. 7 tenths
 5. $\frac{1}{2}$ 6. $\frac{1}{4}$ 7. $\frac{3}{10}$ 8. $\frac{4}{5}$ 9. $\frac{33}{100}$

Write the fraction for the shaded part.

10.



11.



12.



Multiply.

13. $\frac{1}{2} \times 8$ 14. $\frac{2}{3} \times 9$ 15. $\frac{3}{5} \times 10$ 16. $\frac{7}{10} \times 20$

Write the ratio.

17. 6 stars to 5 sticks 18. 3 men to 2 women 19. 1 large to 3 small

Write a ratio equal to the given ratio.

20. $\frac{2}{3}$ 21. $\frac{8}{10}$ 22. $\frac{1}{2}$ 23. $\frac{3}{10}$ 24. $\frac{12}{16}$

Find the missing term.

25. $\frac{3}{10} = \frac{30}{\blacksquare}$ 26. $\frac{\blacksquare}{3} = \frac{7}{21}$ 27. $\frac{3}{4} = \frac{\blacksquare}{24}$ 28. $\frac{10}{\blacksquare} = \frac{2}{5}$ 29. $\frac{3}{6} = \frac{\blacksquare}{2}$

Are the fractions equivalent?

30. $\frac{2}{3}$ and $\frac{3}{9}$ 31. $\frac{1}{2}$ and $\frac{7}{13}$ 32. $\frac{2}{5}$ and $\frac{4}{10}$ 33. $\frac{1}{4}$ and $\frac{4}{16}$

Write $<$ or $>$.

34. $\frac{1}{4} \blacksquare \frac{3}{4}$ 35. $\frac{4}{5} \blacksquare \frac{2}{5}$ 36. $\frac{1}{2} \blacksquare \frac{7}{10}$ 37. $\frac{3}{5} \blacksquare \frac{3}{10}$

Solve.

38. The lengths of two sides of a rectangle are 11.34 cm and 5.86 cm.
What is the perimeter of the rectangle?

UNIT 9

DECIMALS



Planting Puzzle



Answer the questions and use the code to find out what two vegetables the farmer is planting.

1. $3 \times \$5$

2. $4 \times \$6.00$

3. $7 \times 4¢$

4. $9 \times \$0.09$

5. $4 \times \$3.75$

6. $6 \times \$3.89$

7. $24¢ \div 3$

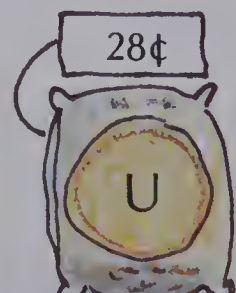
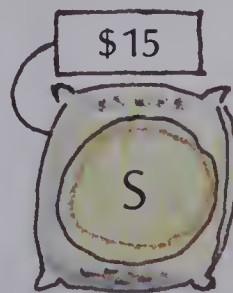
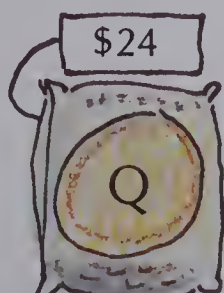
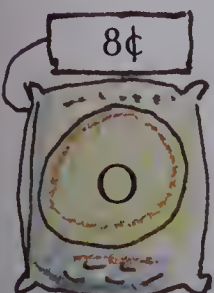
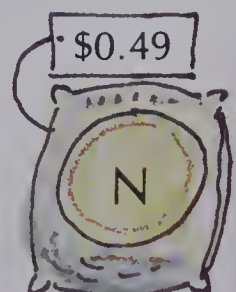
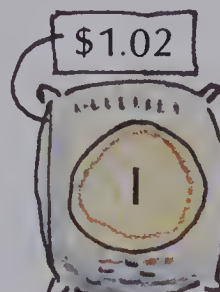
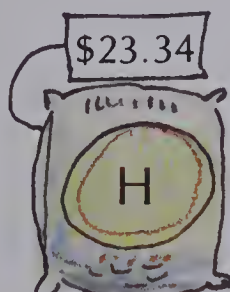
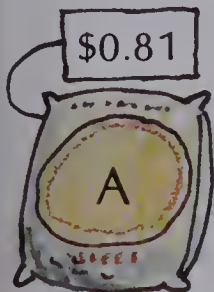
8. $\$0.98 \div 2$

9. $\$8.16 \div 8$

10. $\$0.72 \div 9$

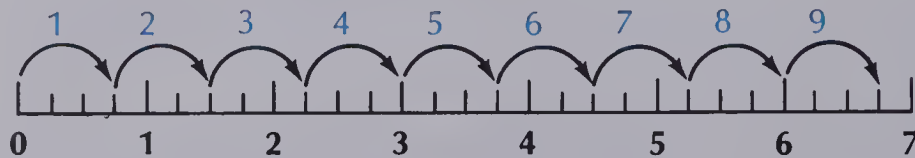
11. $\$3.92 \div 8$

12. $\$75.00 \div 5$



Multiplying Hundredths

A cubic metre of wheat has a mass of 0.75 t. Mr. Milosz has 9 m³ of wheat in his truck. What is the mass of the wheat?



Look at the number line. Put the decimal point in the answer.

Multiply.

$$\begin{array}{r} 0.75 \\ \times 9 \\ \hline 6.75 \end{array}$$

The mass of the wheat is 6.75 t.



Count the decimal places in the factors.

$$\begin{array}{r} 2 \{ \quad 0.75 \\ \times 9 \\ \hline 2 \{ \quad 6.75 \end{array}$$

Count the decimal places in the product.

These counts should be equal.

EXERCISES

Multiply.

1. $\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$

2. $\begin{array}{r} 3.2 \\ \times 3 \\ \hline \end{array}$

3. $\begin{array}{r} 0.32 \\ \times 3 \\ \hline \end{array}$

4. $\begin{array}{r} 14 \\ \times 4 \\ \hline \end{array}$

5. $\begin{array}{r} 1.4 \\ \times 4 \\ \hline \end{array}$

6. $\begin{array}{r} 0.14 \\ \times 4 \\ \hline \end{array}$

7. $\begin{array}{r} 93 \\ \times 5 \\ \hline \end{array}$

8. $\begin{array}{r} 9.3 \\ \times 5 \\ \hline \end{array}$

9. $\begin{array}{r} 0.93 \\ \times 5 \\ \hline \end{array}$

10. $\begin{array}{r} 0.37 \\ \times 6 \\ \hline \end{array}$

11. $\begin{array}{r} 0.49 \\ \times 7 \\ \hline \end{array}$

12. $\begin{array}{r} 0.72 \\ \times 9 \\ \hline \end{array}$

13. $\begin{array}{r} 0.18 \\ \times 4 \\ \hline \end{array}$

14. $\begin{array}{r} 0.26 \\ \times 5 \\ \hline \end{array}$

15. $\begin{array}{r} 0.53 \\ \times 8 \\ \hline \end{array}$

PRACTICE

Copy the question. Put the decimal point in the answer.

$$\begin{array}{r} 1. \quad 0.03 \\ \times \quad 2 \\ \hline 006 \end{array}$$

$$\begin{array}{r} 2. \quad 0.14 \\ \times \quad 2 \\ \hline 028 \end{array}$$

$$\begin{array}{r} 3. \quad 0.46 \\ \times \quad 5 \\ \hline 230 \end{array}$$

$$\begin{array}{r} 4. \quad 0.78 \\ \times \quad 6 \\ \hline 468 \end{array}$$

$$\begin{array}{r} 5. \quad 0.92 \\ \times \quad 8 \\ \hline 736 \end{array}$$

Find the product.

$$\begin{array}{r} 6. \quad 0.08 \\ \times \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 0.42 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 0.66 \\ \times \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 0.49 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 0.97 \\ \times \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 0.04 \\ \times \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 0.26 \\ \times \quad 5 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 0.54 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 0.85 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 0.68 \\ \times \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 0.76 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 0.18 \\ \times \quad 88 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 5.9 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 0.81 \\ \times \quad 62 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 9.9 \\ \times \quad 7 \\ \hline \end{array}$$

Solve.

21. A cubic metre of oats has a mass of 0.42 t. Spence's truck holds 32 m³. What is the mass of a full load?
22. The Chungs grow cauliflower to sell. Last summer they got \$0.54 for each kilogram. How much did they get for 95 kg?
23. Mrs. Vanderwal must hire a truck to ship cattle from her farm. A cattle truck will carry 16 000 kg. If she has 29 cattle with a mass of about 0.55 t each, will she have to hire more than one truck?

Share Cropping

A small field has 8 trees planted around it as shown. Divide the field into 2 congruent parts so that there are 4 trees in each part.



Multiplying Hundredths

A vegetable farmer sells lettuce to a wholesaler for \$3.25 for each crate. How much does she receive for 8 crates?



Multiply.

Estimate.

Put the decimal point in the answer.

$$\begin{array}{r} \$3.25 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} \$3.25 \\ \times \quad 8 \\ \hline 26\ 00 \end{array}$$

$$8 \times 3 = 24$$

$$\begin{array}{r} \$3.25 \\ \times \quad 8 \\ \hline \$26.00 \end{array}$$

She receives \$26.00 for 8 crates.

Count the decimal places.

$$\begin{array}{r} \$3.25 \\ \times \quad 8 \\ \hline \end{array} \left. \vphantom{\begin{array}{r} \$3.25 \\ \times \quad 8 \\ \hline \end{array}} \right\} \begin{array}{l} 2 \text{ decimal places in the factors} \\ \\ 2 \text{ decimal places in the product} \end{array}$$

EXERCISES

Multiply.

1. $\begin{array}{r} 143 \\ \times \quad 2 \\ \hline \end{array}$

2. $\begin{array}{r} 14.3 \\ \times \quad 2 \\ \hline \end{array}$

3. $\begin{array}{r} 1.43 \\ \times \quad 2 \\ \hline \end{array}$

4. $\begin{array}{r} 526 \\ \times \quad 5 \\ \hline \end{array}$

5. $\begin{array}{r} 52.6 \\ \times \quad 5 \\ \hline \end{array}$

6. $\begin{array}{r} 5.26 \\ \times \quad 5 \\ \hline \end{array}$

7. $\begin{array}{r} 408 \\ \times \quad 7 \\ \hline \end{array}$

8. $\begin{array}{r} 40.8 \\ \times \quad 7 \\ \hline \end{array}$

9. $\begin{array}{r} 4.08 \\ \times \quad 7 \\ \hline \end{array}$

10. $\begin{array}{r} 365 \\ \times \quad 8 \\ \hline \end{array}$

11. $\begin{array}{r} 36.5 \\ \times \quad 8 \\ \hline \end{array}$

12. $\begin{array}{r} 3.65 \\ \times \quad 8 \\ \hline \end{array}$

13. $\begin{array}{r} 5.67 \\ \times \quad 4 \\ \hline \end{array}$

14. $\begin{array}{r} 7.49 \\ \times \quad 5 \\ \hline \end{array}$

15. $\begin{array}{r} 8.36 \\ \times \quad 9 \\ \hline \end{array}$

16. $\begin{array}{r} 8.36 \\ \times \quad 49 \\ \hline \end{array}$

17. $\begin{array}{r} 1.76 \\ \times \quad 7 \\ \hline \end{array}$

18. $\begin{array}{r} 1.76 \\ \times \quad 57 \\ \hline \end{array}$

19. $\begin{array}{r} 2.09 \\ \times \quad 3 \\ \hline \end{array}$

20. $\begin{array}{r} 2.09 \\ \times \quad 63 \\ \hline \end{array}$

PRACTICE

Copy the question. Put the decimal point in the answer.

$$\begin{array}{r} 1. \quad 3.01 \\ \times \quad 2 \\ \hline 602 \end{array}$$

$$\begin{array}{r} 2. \quad 4.13 \\ \times \quad 5 \\ \hline 2065 \end{array}$$

$$\begin{array}{r} 3. \quad 6.43 \\ \times \quad 6 \\ \hline 3858 \end{array}$$

$$\begin{array}{r} 4. \quad 7.59 \\ \times \quad 4 \\ \hline 3036 \end{array}$$

$$\begin{array}{r} 5. \quad 8.38 \\ \times \quad 8 \\ \hline 6704 \end{array}$$

Find the product.

$$\begin{array}{r} 6. \quad 2.03 \\ \times \quad 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 4.01 \\ \times \quad 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5.55 \\ \times \quad 6 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 9.35 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 9.78 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 1.04 \\ \times \quad 15 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 3.15 \\ \times \quad 32 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 5.26 \\ \times \quad 41 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 6.39 \\ \times \quad 66 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 8.25 \\ \times \quad 48 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 2.89 \\ \times \quad 13 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 50.4 \\ \times \quad 57 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 87.5 \\ \times \quad 60 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 9.69 \\ \times \quad 37 \\ \hline \end{array}$$

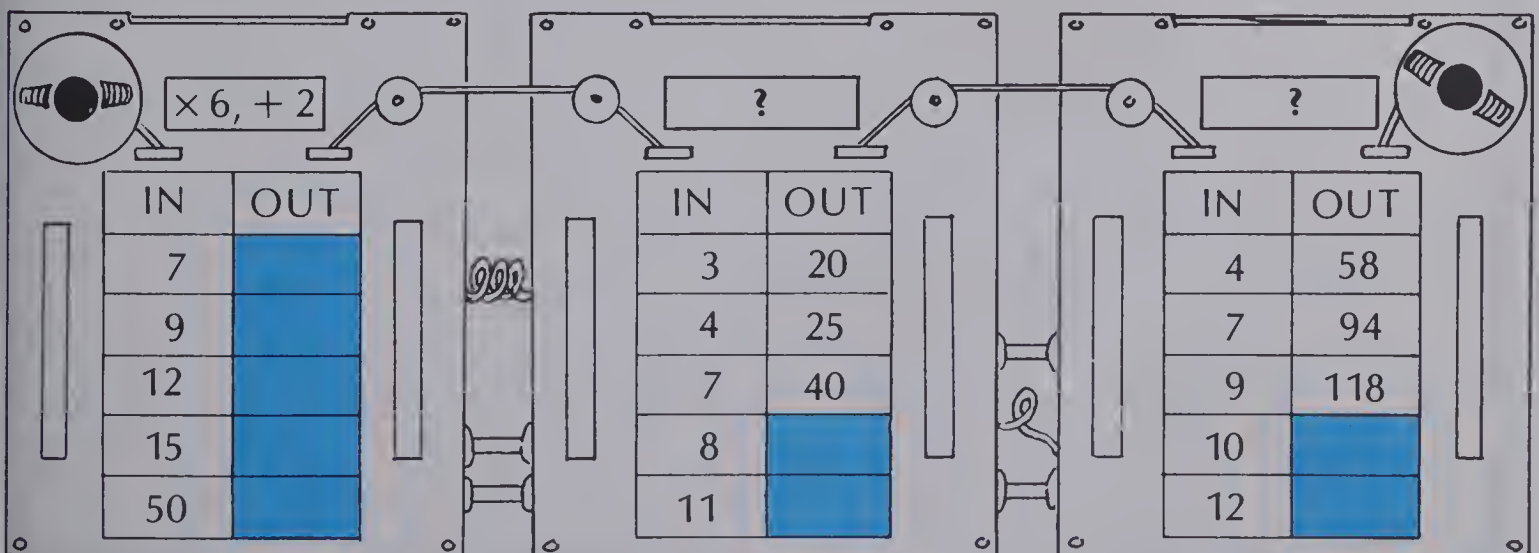
$$\begin{array}{r} 20. \quad 90.1 \\ \times \quad 89 \\ \hline \end{array}$$

Solve.

21. Hogs sell for \$1.48/kg. How much would a 75 kg animal sell for?

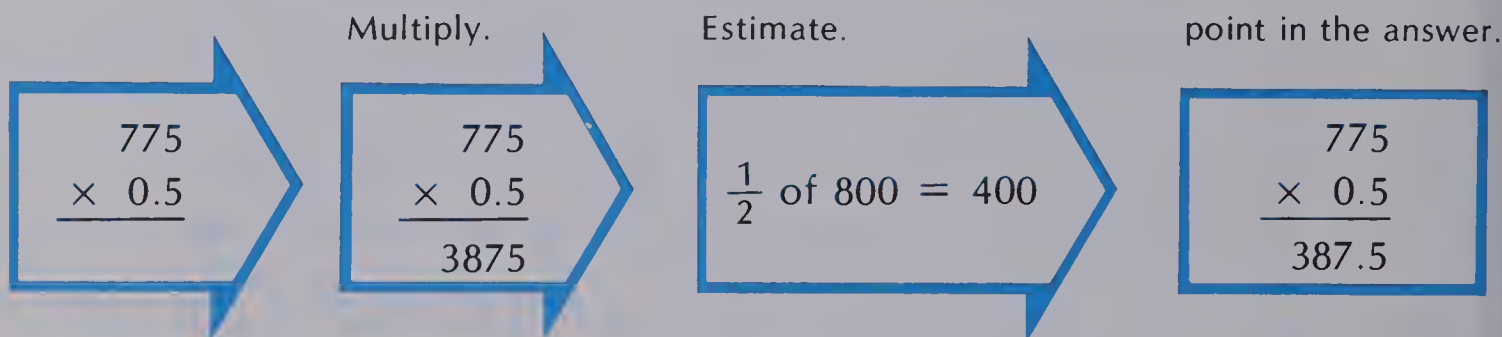
22. A hectare of orchard can yield 8.96 t of Bartlett pears. The Swensons have 15 hectares (ha) of Bartlett pears. What yield can they expect?

Computer Tutor



Multiplying by Tenths

A poultry farmer has 775 chickens.
He gives each chicken 0.5 L of water
every day. How much water does he
need for all his chickens each day?



One decimal place in the factors $\left\{ \begin{array}{r} 775 \\ \times 0.5 \\ \hline \end{array} \right.$

One decimal place in the product $\left\{ \begin{array}{r} 387.5 \end{array} \right.$

EXERCISES

Multiply.

1.
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 5 \\ \times 0.5 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 20 \\ \times 0.5 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 25 \\ \times 0.5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 125 \\ \times 0.5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 8 \\ \times 0.7 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 30 \\ \times 0.7 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 38 \\ \times 0.7 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 338 \\ \times 0.7 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 24 \\ \times 0.2 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 24 \\ \times 12 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 24 \\ \times 1.2 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 124 \\ \times 1.2 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 324 \\ \times 1.2 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 23 \\ \times 0.6 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 52 \\ \times 0.9 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 37 \\ \times 1.5 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 81 \\ \times 2.9 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 35 \\ \times 6.7 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 39 \\ \times 0.7 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 43 \\ \times 5.2 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 66 \\ \times 7.4 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 27 \\ \times 9.6 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 75 \\ \times 5.8 \\ \hline \end{array}$$

PRACTICE

Copy the question. Put the decimal point in the answer.

$$\begin{array}{r} 1. \quad 7 \\ \times 0.5 \\ \hline 35 \end{array}$$

$$\begin{array}{r} 2. \quad 8 \\ \times 0.7 \\ \hline 56 \end{array}$$

$$\begin{array}{r} 3. \quad 24 \\ \times 0.2 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 4. \quad 80 \\ \times 0.9 \\ \hline 720 \end{array}$$

$$\begin{array}{r} 5. \quad 37 \\ \times 2.3 \\ \hline 851 \end{array}$$

Find the product.

$$\begin{array}{r} 6. \quad 2 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 34 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 55 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 10 \\ \times 0.1 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 60 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 2 \\ \times 1.3 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 31 \\ \times 2.5 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 22 \\ \times 4.5 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 134 \\ \times 6.1 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 255 \\ \times 8.4 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 77 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 232 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 455 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 238 \\ \times 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 4532 \\ \times 0.7 \\ \hline \end{array}$$

Solve.

21. The Bensons have a cherry orchard. Its area is 8 hectares (ha). Each hectare yields about 4.8 t of cherries. How many tonnes will the whole orchard yield?
22. The Mishkos cherry orchard yielded 48 t. They sold nine tenths of the cherries to the cannery and the rest to the market. How much did they sell to the market?

USING THE CALCULATOR

Use a calculator to multiply these.

$$\begin{array}{r} 1. \quad 333 \\ \times 2.9 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 333 \\ \times 0.29 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 33.3 \\ \times 2.9 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 33.3 \\ \times 29 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 3.33 \\ \times 29 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 27.8 \\ \times 1.4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 14.5 \\ \times 7.4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 16.3 \\ \times 11.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 43.2 \\ \times 21.9 \\ \hline \end{array}$$

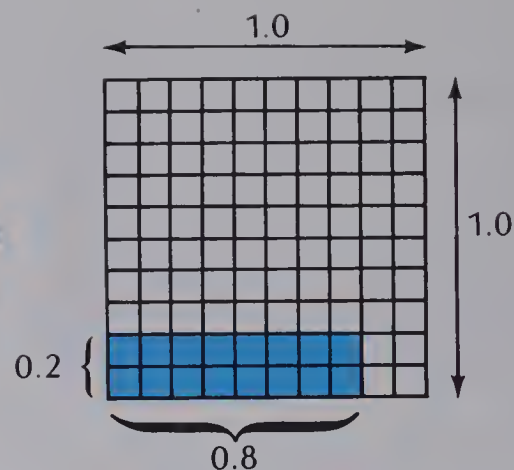
$$\begin{array}{r} 10. \quad 7.6 \\ \times 8.7 \\ \hline \end{array}$$

11. Write a rule for finding the number of decimal places in the answer.

Multiplying by Tenths

Mrs. Sims wants to plant carrots. She learned that a kilogram of seed will sow 0.2 ha (hectares). How much will 0.8 kg of seed sow?

$$0.2 \times 0.8 = ?$$



The large square is 1 square unit. By counting small squares, we see:

$$0.2 \times 0.8 = \frac{16}{100} = 0.16$$

The seed will sow 0.16 ha (hectares).

Multiply.

Count the decimal places in the factors.

Put the decimal point in the answer.

$$\begin{array}{r} 0.2 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 0.2 \\ \times 0.8 \\ \hline 016 \end{array}$$

2

$$\begin{array}{r} 0.2 \\ \times 0.8 \\ \hline 0.16 \end{array}$$

EXERCISES

Multiply. How many decimal places are there?

1. $\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$

2. $\begin{array}{r} 0.3 \\ \times 2 \\ \hline \end{array}$

3. $\begin{array}{r} 0.3 \\ \times 0.2 \\ \hline \end{array}$

4. $\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$

5. $\begin{array}{r} 0.1 \\ \times 4 \\ \hline \end{array}$

6. $\begin{array}{r} 0.1 \\ \times 0.4 \\ \hline \end{array}$

7. $\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$

8. $\begin{array}{r} 0.6 \\ \times 4 \\ \hline \end{array}$

9. $\begin{array}{r} 0.6 \\ \times 0.4 \\ \hline \end{array}$

10. $\begin{array}{r} 9 \\ \times 7 \\ \hline \end{array}$

11. $\begin{array}{r} 0.9 \\ \times 7 \\ \hline \end{array}$

12. $\begin{array}{r} 0.9 \\ \times 0.7 \\ \hline \end{array}$

13. $\begin{array}{r} 0.7 \\ \times 0.5 \\ \hline \end{array}$

14. $\begin{array}{r} 0.4 \\ \times 0.8 \\ \hline \end{array}$

15. $\begin{array}{r} 0.9 \\ \times 0.6 \\ \hline \end{array}$

16. $\begin{array}{r} 0.8 \\ \times 0.9 \\ \hline \end{array}$

17. $\begin{array}{r} 0.3 \\ \times 0.5 \\ \hline \end{array}$

18. $\begin{array}{r} 0.7 \\ \times 0.2 \\ \hline \end{array}$

19. $\begin{array}{r} 0.7 \\ \times 0.7 \\ \hline \end{array}$

20. $\begin{array}{r} 0.9 \\ \times 0.8 \\ \hline \end{array}$

PRACTICE

Find the product.

1.
$$\begin{array}{r} 0.6 \\ \times 0.6 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 0.5 \\ \times 0.2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 0.6 \\ \times 0.7 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 0.7 \\ \times 0.8 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 0.4 \\ \times 0.7 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 0.7 \\ \times 2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 14 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 0.6 \\ \times 0.4 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 0.4 \\ \times 6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 20 \\ \times 9 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 0.7 \\ \times 0.4 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 0.31 \\ \times 9 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 1.4 \\ \times 3 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 2.7 \\ \times 25 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 0.8 \\ \times 0.6 \\ \hline \end{array}$$

Solve.

16. A kilogram of lettuce seed will sow 0.9 ha (hectares). What area will 0.5 kg of seed sow?
17. Each hectare of cherry orchard should be fertilized with 0.2 t of ammonium nitrate. The Kirks have 0.7 ha in cherries. How much fertilizer do they need?

REVIEW

Multiply.

A36 1.
$$\begin{array}{r} 0.53 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 0.27 \\ \times 5 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 0.84 \\ \times 9 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 0.19 \\ \times 7 \\ \hline \end{array}$$

A37 5.
$$\begin{array}{r} 2.55 \\ \times 5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 1.06 \\ \times 7 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 8.26 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 5.34 \\ \times 6 \\ \hline \end{array}$$

A38 9.
$$\begin{array}{r} 18 \\ \times 0.6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 35 \\ \times 1.3 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 210 \\ \times 0.7 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 365 \\ \times 2.8 \\ \hline \end{array}$$

A39 13.
$$\begin{array}{r} 0.5 \\ \times 0.9 \\ \hline \end{array}$$

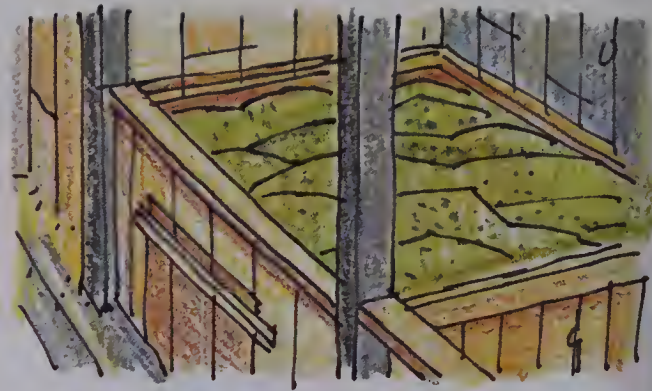
14.
$$\begin{array}{r} 0.2 \\ \times 0.7 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 0.7 \\ \times 0.8 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 0.9 \\ \times 0.4 \\ \hline \end{array}$$

Multiplying by Tenths

A cubic metre of barley has a mass of 0.6 t. The Caseys barley bin holds 8.4 m^3 . What is the mass of the barley when the bin is full?



Multiply.

Count the decimal places in the factors.

Put the decimal point in the answer.

$$\begin{array}{r} 8.4 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 8.4 \\ \times 0.6 \\ \hline 504 \end{array}$$

$$2$$

$$\begin{array}{r} 8.4 \\ \times 0.6 \\ \hline 5.04 \end{array}$$

There are 5.04 t of barley in the bin when it is full.

Check by estimating:

0.6 is about $\frac{1}{2}$. 8.4 is about 8.

0.6×8.4 is about $\frac{1}{2} \times 8$ or 4.

EXERCISES

How many decimal places are there in the factors? Multiply.

1. $\begin{array}{r} 34 \\ \times 0.2 \\ \hline \end{array}$

2. $\begin{array}{r} 3.4 \\ \times 0.2 \\ \hline \end{array}$

3. $\begin{array}{r} 61 \\ \times 0.1 \\ \hline \end{array}$

4. $\begin{array}{r} 6.1 \\ \times 0.1 \\ \hline \end{array}$

5. $\begin{array}{r} 46 \\ \times 0.7 \\ \hline \end{array}$

6. $\begin{array}{r} 4.6 \\ \times 0.7 \\ \hline \end{array}$

7. $\begin{array}{r} 75 \\ \times 0.8 \\ \hline \end{array}$

8. $\begin{array}{r} 7.5 \\ \times 0.8 \\ \hline \end{array}$

9. $\begin{array}{r} 23 \\ \times 0.3 \\ \hline \end{array}$

10. $\begin{array}{r} 2.3 \\ \times 0.3 \\ \hline \end{array}$

11. $\begin{array}{r} 5.6 \\ \times 0.7 \\ \hline \end{array}$

12. $\begin{array}{r} 7.2 \\ \times 0.4 \\ \hline \end{array}$

13. $\begin{array}{r} 9.3 \\ \times 0.6 \\ \hline \end{array}$

14. $\begin{array}{r} 1.8 \\ \times 0.8 \\ \hline \end{array}$

15. $\begin{array}{r} 3.7 \\ \times 0.5 \\ \hline \end{array}$

Estimate. Then multiply.

16. $\begin{array}{r} 8.4 \\ \times 0.6 \\ \hline \end{array}$

17. $\begin{array}{r} 7.8 \\ \times 0.5 \\ \hline \end{array}$

18. $\begin{array}{r} 4.3 \\ \times 0.7 \\ \hline \end{array}$

19. $\begin{array}{r} 6.9 \\ \times 0.4 \\ \hline \end{array}$

20. $\begin{array}{r} 5.5 \\ \times 0.9 \\ \hline \end{array}$

PRACTICE

Copy the question. Put the decimal point in the answer.

$$\begin{array}{r} 1. \quad 3.2 \\ \times 0.3 \\ \hline 96 \end{array}$$

$$\begin{array}{r} 2. \quad 4.3 \\ \times 0.2 \\ \hline 86 \end{array}$$

$$\begin{array}{r} 3. \quad 2.75 \\ \times 3 \\ \hline 825 \end{array}$$

$$\begin{array}{r} 4. \quad 0.7 \\ \times 0.6 \\ \hline 42 \end{array}$$

$$\begin{array}{r} 5. \quad 9.5 \\ \times 7 \\ \hline 665 \end{array}$$

Find the product.

$$\begin{array}{r} 6. \quad 4.1 \\ \times 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 2.4 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5.3 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 6.8 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 7.5 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 9.6 \\ \times 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 8.2 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 2.6 \\ \times 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 3.7 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 5.6 \\ \times 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 20.3 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 341 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 48.3 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 574 \\ \times 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 65.8 \\ \times 0.8 \\ \hline \end{array}$$

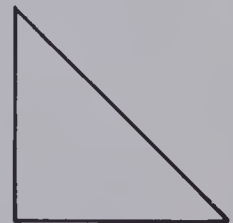
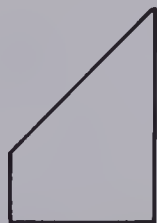
Solve.

21. A hectare of peas can be expected to yield 3.9 t.
The Giordanos planted 0.8 ha (hectares) in peas. What
yield can they expect?

22. It takes 19.5 kg of beet seed to sow a hectare. How
much is needed to sow 0.7 ha?

You're a Square

Trace these figures. Paste the tracing
on heavy paper. Cut out the pieces
and fit them together to make a
square.



Multiplying by Tenths

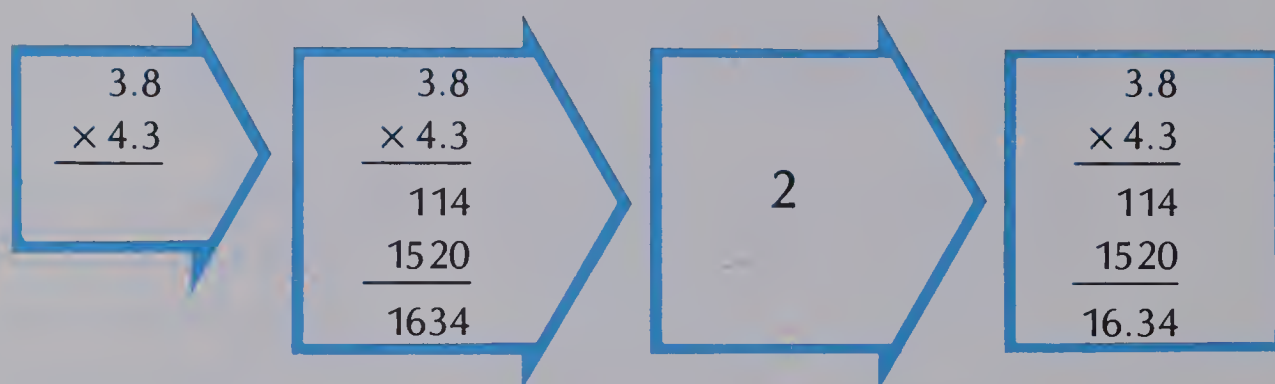
The Sutters have a 3.8 ha orchard of sweet cherries. They expect each hectare to yield 4.3 t of cherries. How many tonnes of cherries do they expect in all?



Multiply.

Count the decimal places in the factors.

Put the decimal point in the answer.



The Sutters expect 16.34 t of cherries.

Check by estimating:

4.3 is about 4. 3.8 is about 4.

4.3×3.8 is about 4×4 or 16.

EXERCISES

Multiply. Check by estimating.

- | | | | | |
|--|--|--|--|--|
| 1. $\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$ | 2. $\begin{array}{r} 4.1 \\ \times 3.2 \\ \hline \end{array}$ | 3. $\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$ | 4. $\begin{array}{r} 5.7 \\ \times 4.8 \\ \hline \end{array}$ | 5. $\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$ |
| 6. $\begin{array}{r} 2.3 \\ \times 1.8 \\ \hline \end{array}$ | 7. $\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$ | 8. $\begin{array}{r} 8.7 \\ \times 5.4 \\ \hline \end{array}$ | 9. $\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$ | 10. $\begin{array}{r} 6.5 \\ \times 3.4 \\ \hline \end{array}$ |
| 11. $\begin{array}{r} 2.1 \\ \times 3.4 \\ \hline \end{array}$ | 12. $\begin{array}{r} 6.8 \\ \times 6.7 \\ \hline \end{array}$ | 13. $\begin{array}{r} 2.5 \\ \times 7.4 \\ \hline \end{array}$ | 14. $\begin{array}{r} 7.3 \\ \times 8.2 \\ \hline \end{array}$ | 15. $\begin{array}{r} 4.9 \\ \times 5.1 \\ \hline \end{array}$ |

PRACTICE

Copy the question. Put the decimal point in the answer.

$$\begin{array}{r} 1. \quad 3.1 \\ \times 1.2 \\ \hline 372 \end{array}$$

$$\begin{array}{r} 2. \quad 0.43 \\ \times 8 \\ \hline 344 \end{array}$$

$$\begin{array}{r} 3. \quad 0.7 \\ \times 0.8 \\ \hline 56 \end{array}$$

$$\begin{array}{r} 4. \quad 6.2 \\ \times 0.5 \\ \hline 310 \end{array}$$

$$\begin{array}{r} 5. \quad 2.95 \\ \times 7 \\ \hline 2065 \end{array}$$

Find the product. Check by estimating.

$$\begin{array}{r} 6. \quad 2.4 \\ \times 1.2 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 1.3 \\ \times 3.1 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 4.7 \\ \times 3.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 5.8 \\ \times 7.5 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 6.9 \\ \times 8.4 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 9.2 \\ \times 3.1 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 2.7 \\ \times 2.7 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 4.6 \\ \times 3.7 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 5.7 \\ \times 5.4 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 4.8 \\ \times 7.6 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 0.42 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 44.2 \\ \times 39 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 0.8 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 298 \\ \times 2.7 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 9.20 \\ \times 9 \\ \hline \end{array}$$

Solve.

21. It takes 87.4 kg of beans to sow a hectare.
How much is needed to sow 6.5 ha?
22. Joyce worked on a farm weeding vegetables. One week she worked 24.5 h. She earned \$3.50 dollars an hour.
How much did she earn?

Potato Pay

A farmer has 4.5 ha planted in potatoes. He expects 22.5 t from each hectare. If he gets \$80 for each tonne of potatoes, what will his income be?



Rounding and Estimating



Farmer Bye harvested 14.68 t of corn.

Farmer Bennie harvested 14.63 t.

They keep track of their harvests **to the nearest tenth** of a tonne.

To round a decimal to the nearest tenth:

Find the
tenths digit.

14.68

Look at the
hundredths digit.

14.68

If it is 5 or more, round up.
Add 1 to the tenths digit.

14.7

If it is 4 or less,
the tenths digit stays the same.

14.63

14.63

14.6

Farmer Bye harvested about 14.7 t.

Farmer Bennie harvested about 14.6 t.

EXERCISES

How many hundredths are in each number?

1. 39.36

2. 8.74

3. 52.60

4. 4.35

Round each to the nearest tenth.

5. 39.36

6. 8.74

7. 52.60

8. 4.35

9. 81.24

10. 81.25

11. 81.26

12. 81.96

Estimate the product. Round the factors to tenths before you multiply.

13.
$$\begin{array}{r} 36.54 \\ \times 2 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 8.63 \\ \times 1.5 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 8.79 \\ \times 3.54 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 2.64 \\ \times 5.95 \\ \hline \end{array}$$

PRACTICE

Round to the nearest tenth.

- | | | | |
|----------|----------|------------|------------|
| 1. 3.59 | 2. 28.78 | 3. 6.48 | 4. 71.63 |
| 5. 5.91 | 6. 79.03 | 7. 5.82 | 8. 26.36 |
| 9. 43.85 | 10. 2.98 | 11. 174.63 | 12. 923.55 |

Round to the nearest dime.

- | | | | |
|-------------|--------------|--------------|-------------|
| 13. \$39.26 | 14. \$409.95 | 15. \$800.93 | 16. \$31.97 |
|-------------|--------------|--------------|-------------|

17. Round the numbers.

	to nearest ten	to nearest whole	to nearest tenth
93.57			
14.28			
89.59			
98.35			

Estimate the products.

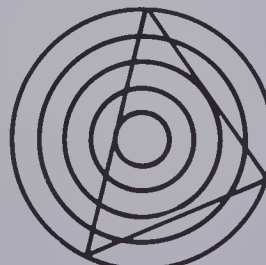
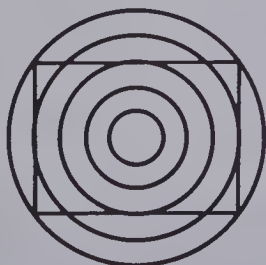
- | | | |
|------------------------|-------------------------|--------------------------|
| 18. 6×34.98 | 19. 7.5×5.04 | 20. 8.64×4.95 |
| 21. $12 \times \$3.99$ | 22. $8.5 \times \$2.39$ | 23. $6.69 \times \$2.34$ |

Multiply. Give the answers to the nearest tenth.

- | | | | |
|--|--|--|--|
| 24. $\begin{array}{r} 5.7 \\ \times 8.9 \\ \hline \end{array}$ | 25. $\begin{array}{r} 2.8 \\ \times 6.3 \\ \hline \end{array}$ | 26. $\begin{array}{r} 3.5 \\ \times 4.9 \\ \hline \end{array}$ | 27. $\begin{array}{r} 8.6 \\ \times 6.5 \\ \hline \end{array}$ |
|--|--|--|--|

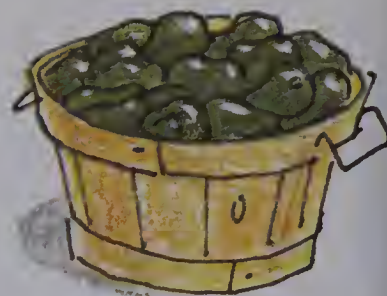
Rounding?

Are the sides of the rectangle and triangle straight lines?
Use a ruler to check your answer.



Dividing Decimals

A farmer harvests 95.52 t of peppers from 8 ha.
About how much does he get from each hectare?



To find the answer, divide just like whole numbers.

Write the
decimal point.

$$8 \overline{)95.52}$$

$$8 \overline{)9552}$$

$$\begin{array}{r} 1194 \\ 8 \overline{)9552} \\ \underline{-8} \\ 15 \\ \underline{-8} \\ 75 \\ \underline{-72} \\ 32 \\ \underline{-32} \\ 0 \end{array}$$

$$\begin{array}{r} 11.94 \\ 8 \overline{)95.52} \end{array}$$

The answer is 11.94 t.

Check by estimating:

95.52 is about 96.

$95.52 \div 8$ is about $96 \div 8$ or 12.

EXERCISES

Divide.

1. $2 \overline{)16}$

2. $2 \overline{)1.6}$

3. $2 \overline{)0.16}$

4. $2 \overline{)2.16}$

5. $2 \overline{)32.16}$

6. $5 \overline{)75}$

7. $5 \overline{)7.5}$

8. $5 \overline{)0.75}$

9. $5 \overline{)5.75}$

10. $5 \overline{)8.75}$

11. $4 \overline{)256}$

12. $4 \overline{)25.6}$

13. $4 \overline{)2.56}$

14. $4 \overline{)12.56}$

15. $4 \overline{)22.56}$

16. $7 \overline{)938}$

17. $7 \overline{)93.8}$

18. $7 \overline{)9.38}$

19. $7 \overline{)23.38}$

20. $7 \overline{)51.38}$

21. $3 \overline{)1602}$

22. $3 \overline{)160.2}$

23. $3 \overline{)16.02}$

24. $3 \overline{)34.02}$

25. $3 \overline{)46.02}$

PRACTICE

Copy and place the decimal point in the quotient.

1. $2.1 \div 3 = 7$ 2. $1.4 \div 2 = 7$ 3. $0.32 \div 4 = 80$
4. $8.5 \div 5 = 17$ 5. $84 \div 6 = 14$ 6. $146 \div 2 = 73$
7. $28.2 \div 3 = 94$ 8. $3.48 \div 4 = 87$ 9. $67.5 \div 5 = 135$
10. $938 \div 7 = 134$ 11. $2019 \div 3 = 673$ 12. $19.12 \div 4 = 478$
13. $336.5 \div 5 = 673$ 14. $74.04 \div 6 = 1234$ 15. $9144 \div 8 = 1143$

Divide.

16. $4 \overline{)3.6}$ 17. $5 \overline{)6.5}$ 18. $6 \overline{)9.6}$ 19. $3 \overline{)0.15}$ 20. $4 \overline{)0.56}$
21. $2 \overline{)14.8}$ 22. $4 \overline{)48.4}$ 23. $6 \overline{)88.2}$ 24. $3 \overline{)2.46}$ 25. $5 \overline{)6.05}$
26. $3 \overline{)246.9}$ 27. $5 \overline{)756.0}$ 28. $6 \overline{)220.2}$ 29. $4 \overline{)8536}$ 30. $7 \overline{)89.25}$

Solve.

31. A grain farmer sells 6 t of oats to the co-op for \$490.20. How much did he receive for each tonne of oats?
32. A farmer harvests 201.60 t of fresh cabbage from 5 ha of land. About how much does she get from each hectare?

Better Buy

Which is the better buy?

1.

3 for \$1.47
or
5 for \$2.40



2.

2 for \$1.00
or
3 for \$1.53



3.

3 for \$2.07
or
7 for \$4.76



Expressing Fractions as Decimals

The original gauge on a storage tank was marked in fourths. When a replacement was received, it was marked in decimals. If the new reading shows 0.8, does a farmer have more or less than when the old reading was $\frac{3}{4}$?

$\frac{3}{4}$ means $3 \div 4$.

$$\frac{3}{4} = 0.75$$

$$0.75 < 0.80$$

$$\begin{array}{r} 0.75 \\ 4 \overline{) 3.00} \\ \underline{-28} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

The new reading of 0.8 is greater than the old reading.

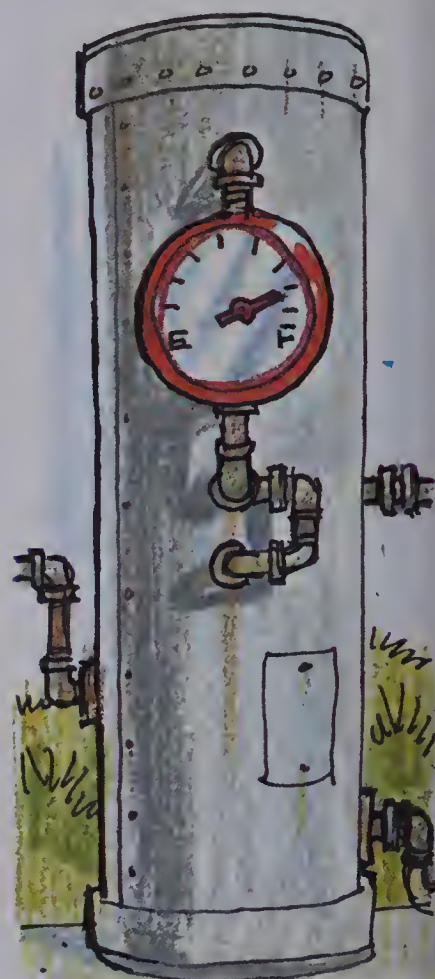
Division can be used to change fractions into decimals.

For example, here's how we change $\frac{3}{5}$ to a decimal.

$$5 \overline{) 3.0}$$

$$\begin{array}{r} 0.6 \\ 5 \overline{) 3.0} \\ \underline{-30} \\ 0 \end{array}$$

$$\frac{3}{5} = 0.6$$



EXERCISES

Change each fraction into a decimal by dividing.

1. $\frac{1}{10}$

2. $\frac{2}{10}$

3. $\frac{5}{10}$

4. $\frac{10}{10}$

5. $\frac{15}{10}$

6. $\frac{1}{2}$

7. $\frac{2}{2}$

8. $\frac{3}{2}$

9. $\frac{4}{2}$

10. $\frac{5}{2}$

11. $\frac{1}{4}$

12. $\frac{2}{4}$

13. $\frac{3}{4}$

14. $\frac{4}{4}$

15. $\frac{5}{4}$

16. $\frac{1}{5}$

17. $\frac{2}{5}$

18. $\frac{3}{5}$

19. $\frac{4}{5}$

20. $\frac{5}{5}$

PRACTICE

Write each fraction as an indicated division.

1. $\frac{1}{4}$

2. $\frac{1}{10}$

3. $\frac{1}{2}$

4. $\frac{3}{10}$

5. $\frac{4}{5}$

Divide.

6. $2 \overline{)1.0}$

7. $5 \overline{)1.0}$

8. $10 \overline{)1.0}$

9. $5 \overline{)3.0}$

10. $10 \overline{)9.0}$

11. $4 \overline{)1.00}$

12. $10 \overline{)1.0}$

13. $50 \overline{)1.00}$

14. $4 \overline{)3.00}$

15. $100 \overline{)1.00}$

Express each fraction in decimal form.

16. $\frac{7}{10}$

17. $\frac{1}{2}$

18. $\frac{2}{5}$

19. $\frac{2}{2}$

20. $\frac{3}{10}$

21. $\frac{1}{4}$

22. $\frac{1}{5}$

23. $\frac{3}{5}$

24. $\frac{3}{4}$

25. $\frac{10}{10}$

Use division to answer each of these questions.

26. Is $\frac{3}{5} = 0.60$?

27. Is $\frac{1}{2} < 0.49$?

28. Is $\frac{4}{5} > 0.78$?

29. Is $0.85 < \frac{4}{5}$?

30. Is $0.76 > \frac{3}{4}$?

31. Is $0.27 > \frac{1}{4}$?

Solve.

32. Which tank has more fuel in it, one showing $\frac{3}{4}$ full or one showing 0.72 full?

Repeaters

What is the decimal equivalent of $\frac{1}{3}$?

$3 \overline{)1.00}$

Try $1 \div 3$ on a calculator. What happens?

What is the decimal equivalent?

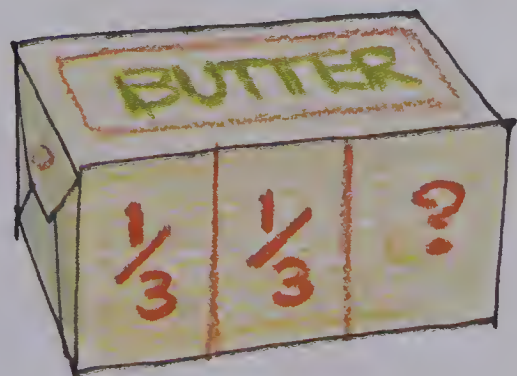
1. $\frac{2}{3}$

2. $\frac{1}{6}$

3. $\frac{5}{6}$

4. $\frac{1}{9}$

5. $\frac{2}{9}$

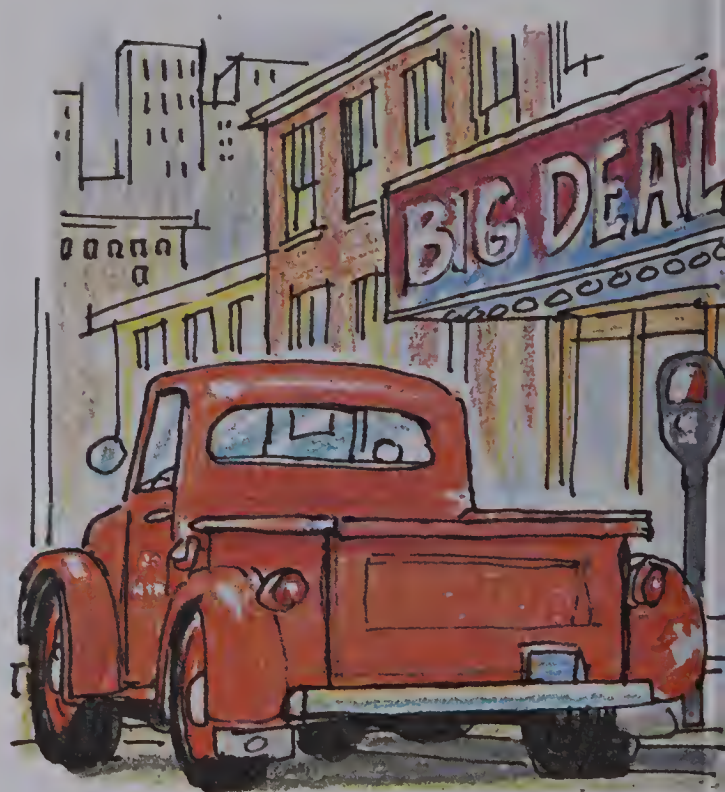


Estimation



Choose the best estimate.

1. Jane bought a skirt for \$47.85 and a sweater for \$62.78. How much did she spend altogether?
a. about \$1 b. about \$100
c. about \$10 d. about \$1000
2. Bill buys 74 stamps at 26¢ each. How much does he have to pay for the stamps?
a. about \$2 b. about \$200
c. about \$20 d. about \$2000
3. A dinner bill of \$101.68 is evenly shared among 4 people. How much does each person pay?
a. about \$2.50 b. about \$250
c. about \$25 d. about \$2500
4. By mistake, Susan sends in a \$781.00 cheque instead of one for \$78.10. How much should she get back?
a. about \$7 b. about \$700
c. about \$70 d. about \$7000



Choose the most reasonable estimate for the answer to each operation.

5. $\$38 \times 82$
a. about 2400 b. about 3200
c. about 2700 d. about 3600
6. $432.683 - 18.42$
a. about 200 b. about 410
c. about 380 d. about 430
7. $\$286.50 \div 6$
a. about \$30 b. about \$50
c. about \$40 d. about \$60
8. $\$5864 + \48
a. about 5800 b. about 6000
c. about 5900 d. about 6100
9. $3.8 \times 0.5 \times 26.4$
a. about 30 b. about 50
c. about 40 d. about 60
10. $7824 \div 24$
a. about 250 b. about 350
c. about 300 d. about 400

PRACTICE

Solve these problems. Estimate to check your answers.

1. Sandy's mother bought a new car for \$10 894. She traded in her three year old station wagon for \$4650. What was the difference that she had to pay?
2. Lenore's father was rewiring the basement and needed to buy 48 m of electrical cable. If a metre of cable cost 46¢, how much did the cable cost?
3. Six friends went out for a special dinner. The bill for the dinner party came to \$262.64. They decided to split the cost. How much did each person pay?
4. Suzanne's father had business interests in Germany and received payment in German marks. If 1 mark is worth \$0.67 in Canadian dollars, how much is a payment of 45 marks worth?

REVIEW

Multiply.

A40

1.
$$\begin{array}{r} 3.2 \\ \times 0.3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 21.4 \\ \times 0.2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4.6 \\ \times 0.5 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 48.2 \\ \times 0.6 \\ \hline \end{array}$$

A41

5.
$$\begin{array}{r} 3.1 \\ \times 1.3 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 2.4 \\ \times 2.2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 5.3 \\ \times 3.6 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 4.8 \\ \times 5.4 \\ \hline \end{array}$$

N18

Round to the nearest tenth.

9. 9.36

10. 20.54

11. 6.95

12. 32.98

A42

Divide.

13. $3 \overline{)2.4}$

14. $6 \overline{)0.90}$

15. $4 \overline{)2.64}$

16. $5 \overline{)77.5}$

A43

Write the equivalent decimal.

17. $\frac{3}{4}$

18. $\frac{4}{5}$

19. $\frac{1}{2}$

20. $\frac{3}{10}$

TEST

UNIT 9

Multiply.

1.
$$\begin{array}{r} 0.04 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 0.08 \\ \times 7 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 0.15 \\ \times 5 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 0.49 \\ \times 3 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 0.68 \\ \times 5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 4.11 \\ \times 2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 4.12 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 3.75 \\ \times 6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 5.49 \\ \times 8 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 6.53 \\ \times 34 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4 \\ \times 0.2 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 9 \\ \times 0.6 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 35 \\ \times 0.9 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 27 \\ \times 4.3 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 132 \\ \times 2.5 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 0.2 \\ \times 0.7 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 0.9 \\ \times 0.8 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 0.3 \\ \times 0.2 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 0.4 \\ \times 0.5 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 0.6 \\ \times 0.7 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 2.1 \\ \times 0.3 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 2.4 \\ \times 0.4 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 3.2 \\ \times 0.8 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 25.1 \\ \times 0.3 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 64.3 \\ \times 0.8 \\ \hline \end{array}$$

26.
$$\begin{array}{r} 5.4 \\ \times 1.6 \\ \hline \end{array}$$

27.
$$\begin{array}{r} 2.2 \\ \times 3.1 \\ \hline \end{array}$$

28.
$$\begin{array}{r} 8.9 \\ \times 6.7 \\ \hline \end{array}$$

29.
$$\begin{array}{r} 2.4 \\ \times 9.5 \\ \hline \end{array}$$

30.
$$\begin{array}{r} 12.2 \\ \times 8.6 \\ \hline \end{array}$$

Round to the nearest tenth.

31. 5.84

32. 7.89

33. 16.35

34. 19.97

35. 236.09

Divide.

36. $4 \overline{)8.4}$

37. $5 \overline{)2.5}$

38. $9 \overline{)18.9}$

39. $8 \overline{)24.08}$

40. $7 \overline{)64.54}$

Write as a decimal.

41. $\frac{1}{2}$

42. $\frac{1}{4}$

43. $\frac{3}{5}$

44. $\frac{3}{4}$

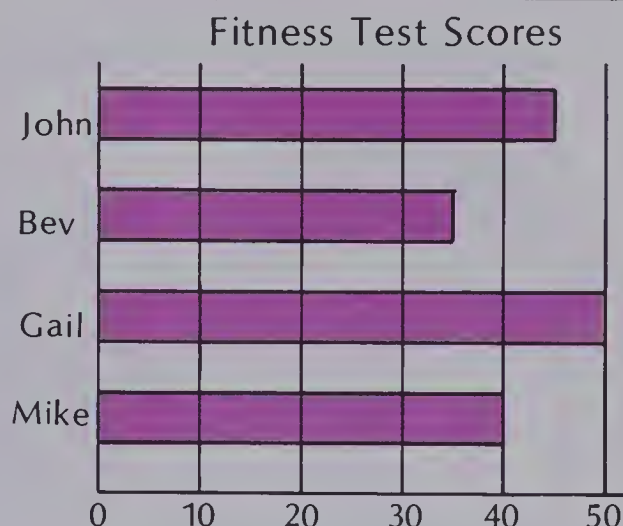
45. $\frac{7}{10}$

Solve.

46. A vegetable farmer sells a crate of celery for \$4.35.
How much does he get for 36 crates?

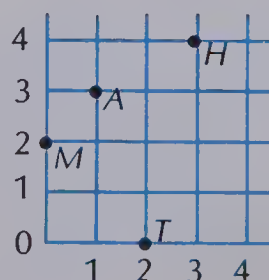
GRAPHS

1. How many points did John score?
2. How many points did Gail score?
3. Who scored the most points?
4. What is the difference between Mike's score and Bev's score?



5. How many hours were spent doing homework?
6. How many hours were spent sleeping?
7. How many hours were spent playing?

8. Write the ordered pair for each letter shown.



Copy and complete the charts.

9. Rule: $\div 9$

In	Out
801	
522	
315	
126	
63	

10. Rule: $+ 2, \times 2$

In	Out
28	
41.5	
60	
107.8	
239.2	

11. Rule: $- 6, \div 2$

In	Out
18	
6	
134	
59	
35.5	

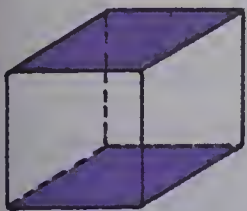
UNIT 10

GEOMETRY



Keeping in Shape

cube



cone



cylinder



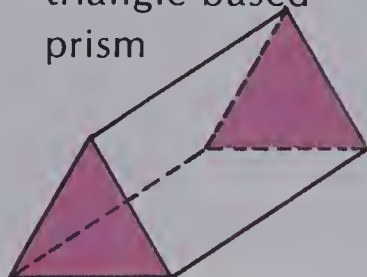
sphere



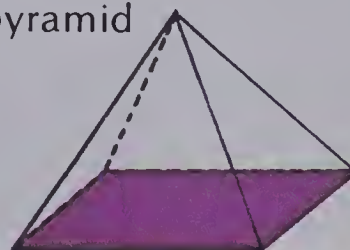
tetrahedron



triangle-based
prism

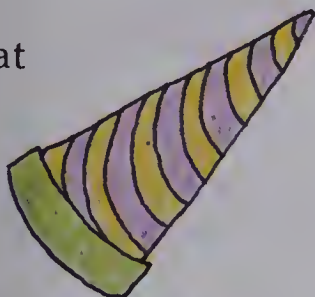


square-based
pyramid



Match each object with each geometric solid.

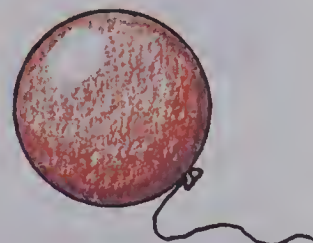
1. Hat



2. Juice
Can



3. Balloon



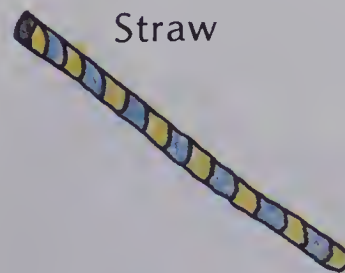
4. Roof
Top



5. Pop
Corn



6. Straw



7. Lunch
Box



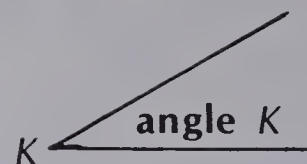
8. Monkey
Bars



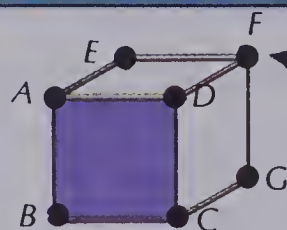
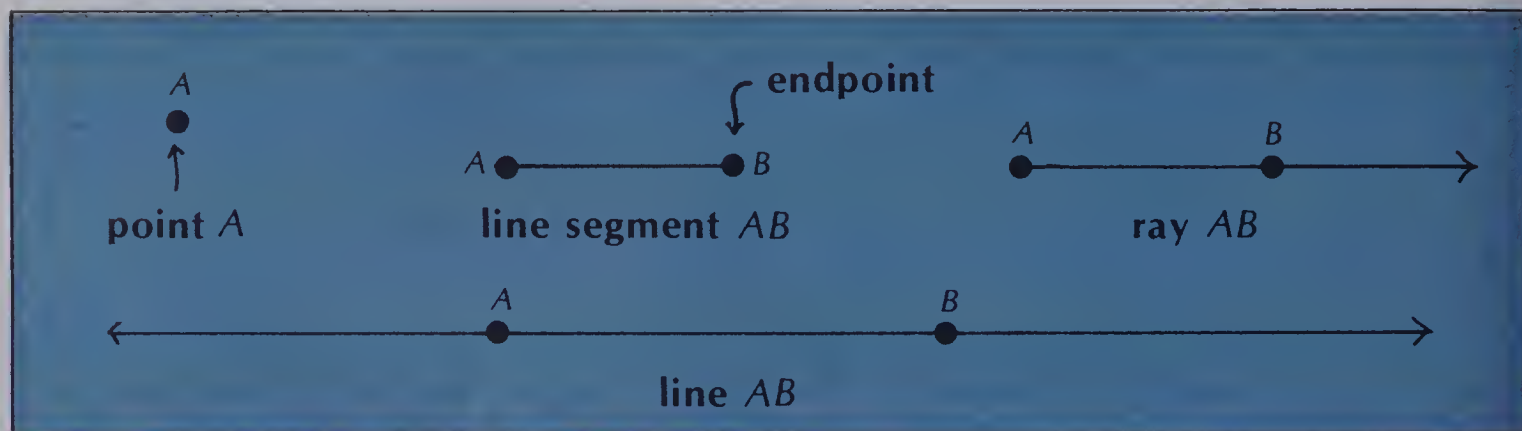
The geometric solids above have several kinds of faces. Make a chart telling about the faces of the solids.

Points and Lines

In Unit 5, we learned to *label* an angle using a letter at its vertex.

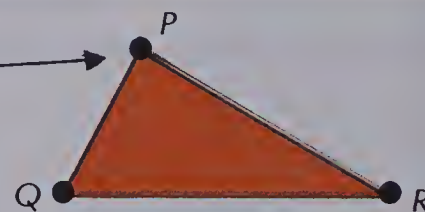


We also label points and lines to help us talk about them.



Segment BC is an **edge** of the cube.

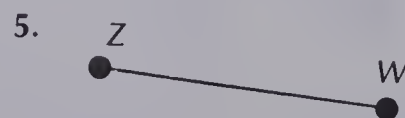
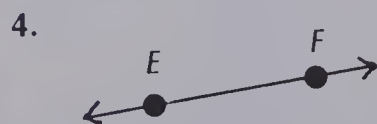
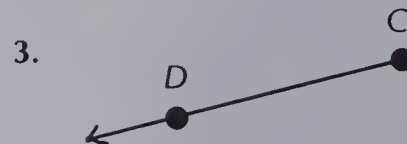
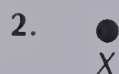
These points are **vertices**. (One is a **vertex**.)



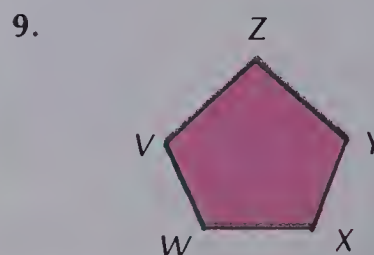
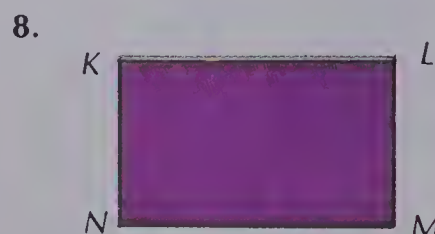
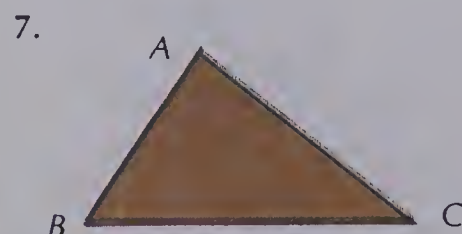
Segment QR is a **side** of the triangle.

EXERCISES

Name each.



Name all the sides of each figure.



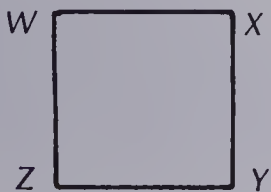
PRACTICE

Draw each of the following.

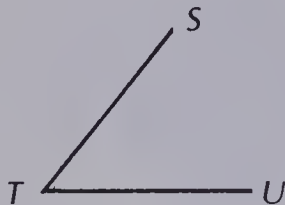
1. a ray AB
2. a point Q
3. a line segment XY
4. a line JK
5. an endpoint F
6. an angle Q
7. two line segments EF and GH that **intersect** at point T
8. a vertex R that is part of figure RST
9. two rays MN and MP that form angle M

Name all the line segments and vertices in each figure.

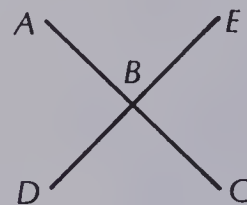
10.



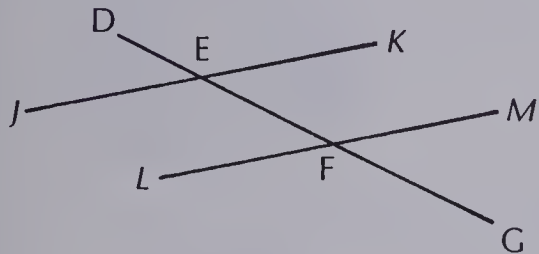
11.



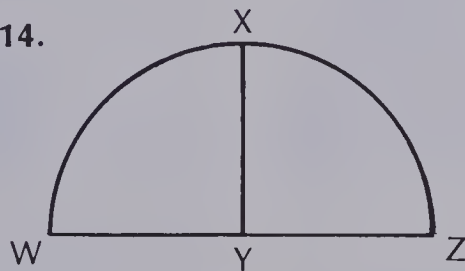
12.



13.



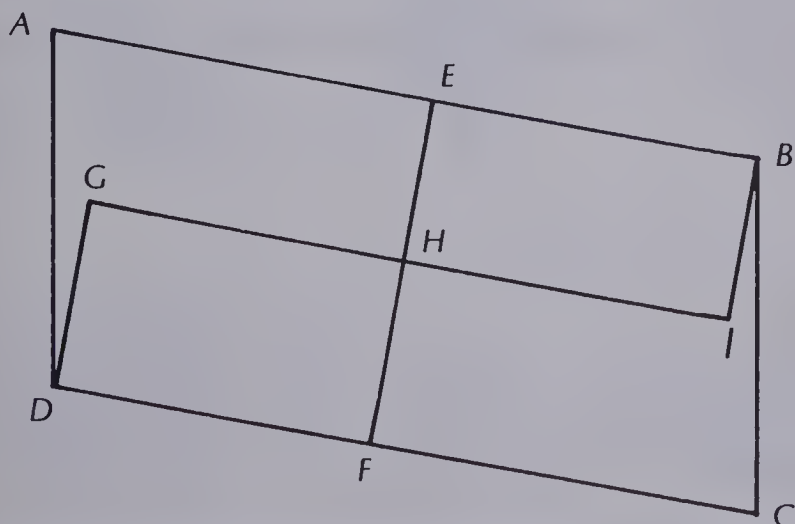
14.



15. Name the angles for the figures in problems 10 and 11.

Perpendicular and Parallel

Find perpendicular and parallel line segments in the figure.

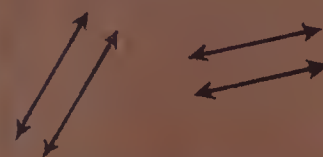


Examples:

perpendicular segments



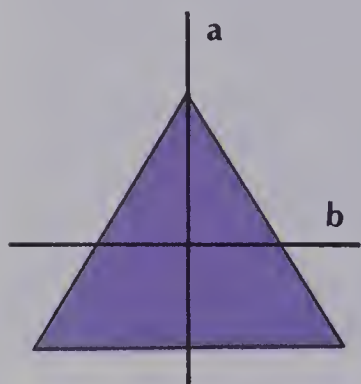
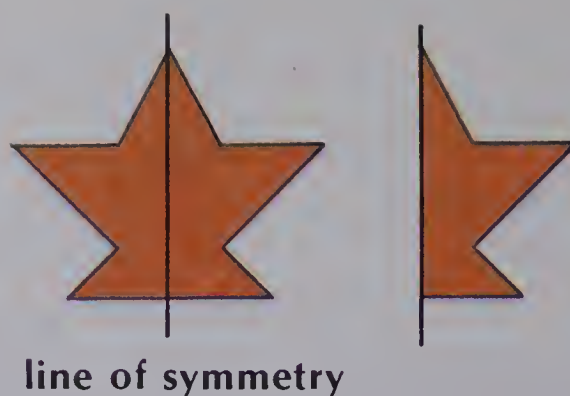
parallel lines



Symmetry

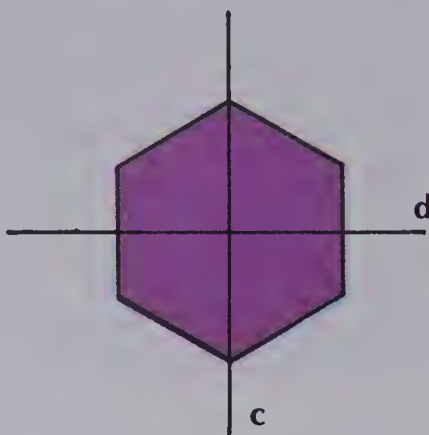
If a figure can be folded on a line so one half fits exactly on the other, the figure is **symmetric**.

The line is called a **line of symmetry**.



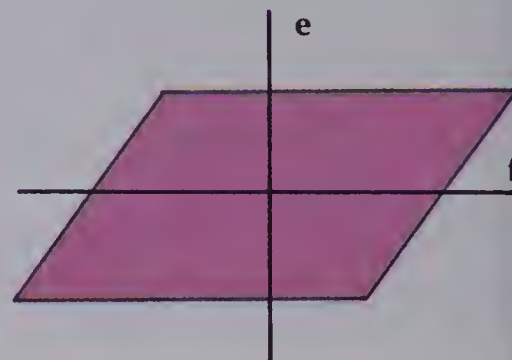
Line **a** is a line of symmetry.

Line **b** is not a line of symmetry.



Lines **c** and **d** are both lines of symmetry.

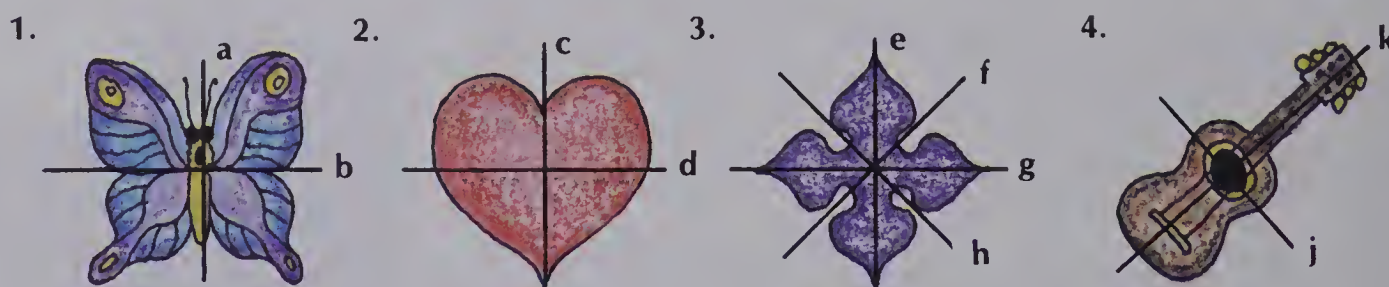
This figure has other lines of symmetry.



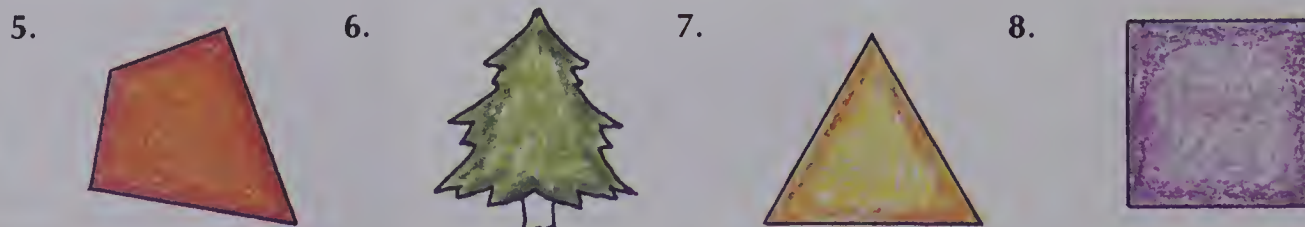
Neither line **e** nor **f** is a line of symmetry.

EXERCISES

Which are lines of symmetry? Use tracing paper.

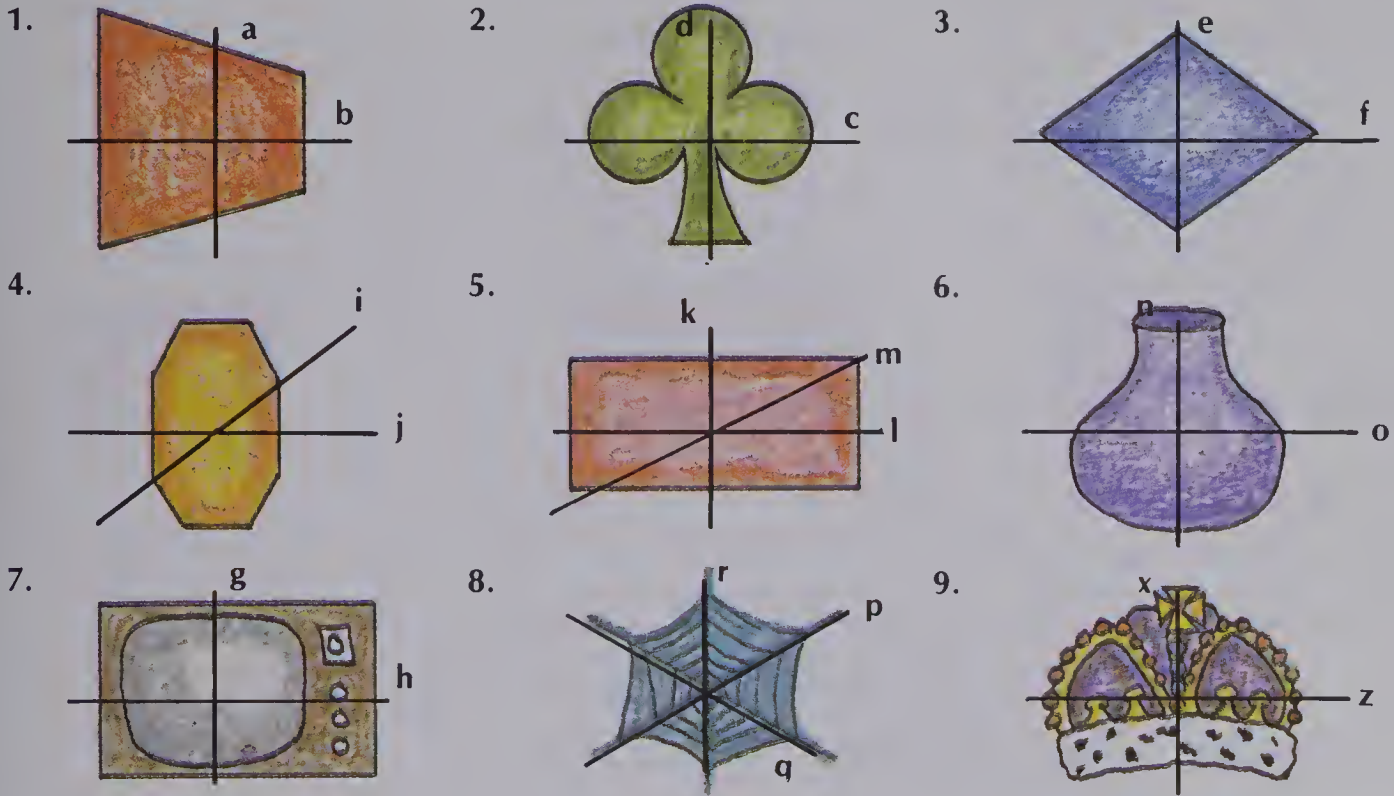


How many lines of symmetry does each figure have?

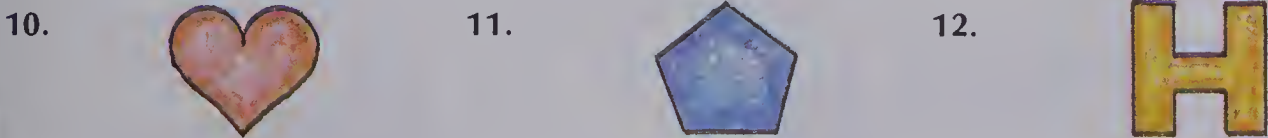


PRACTICE

Which are lines of symmetry? Use tracing paper.



How many lines of symmetry does each figure have?

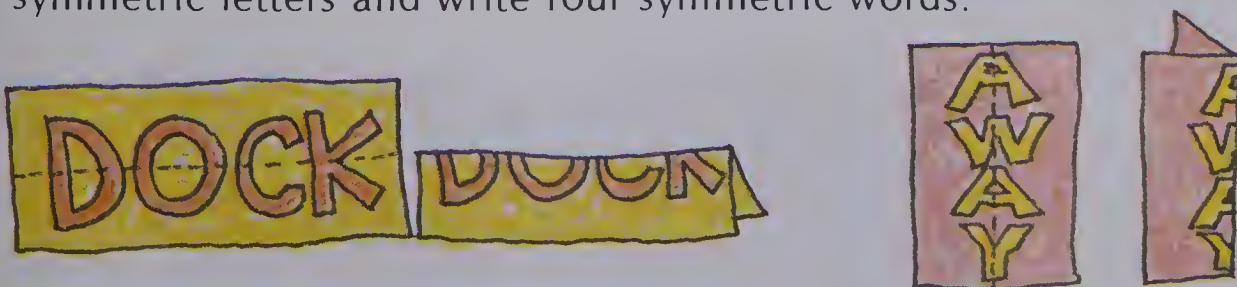


A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

13. List the capital letters that have one line of symmetry.
14. List the capital letters that have two or more lines of symmetry.
15. List the capital letters that have no lines of symmetry.

Symmetric Words

Use symmetric letters and write four symmetric words.



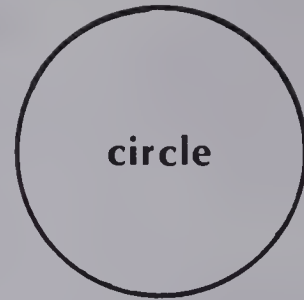
Write a word that does not have any symmetric letters.

Polygons

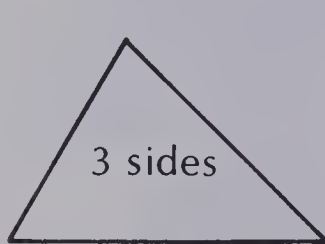
Open curves have two endpoints.



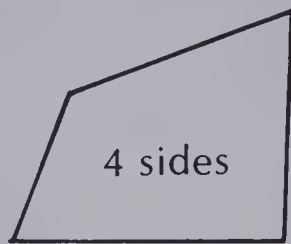
Closed curves have no endpoints.



Polygons are closed curves with straight sides.



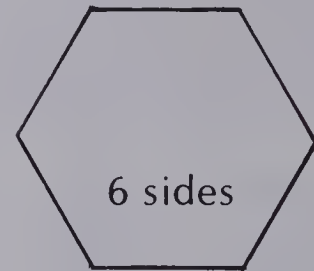
triangle



quadrilateral



pentagon



hexagon

EXERCISES

Name each figure.

1.



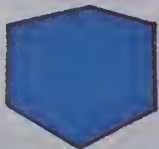
2.



3.



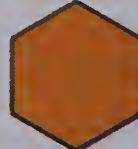
4.



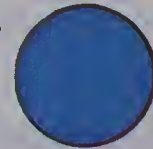
5.



6.



7.



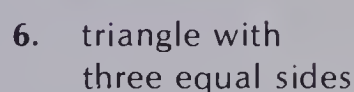
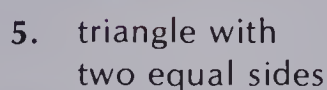
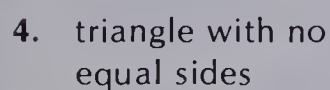
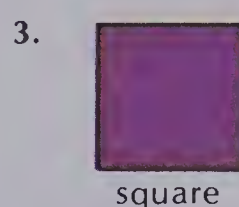
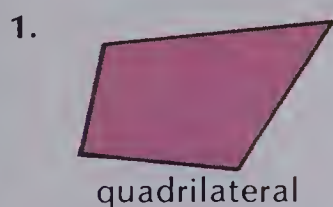
8. Which figure has 3 sides and 3 vertices?
9. Which figure has 5 sides and 5 vertices?
10. Which figure has 6 sides and 6 vertices?
11. Which figure has 4 sides and 4 vertices?
12. What is the name for a quadrilateral with a right angle at each vertex?
13. What is the name for a quadrilateral with four right angles **and** four sides of equal length?



PRACTICE

For each figure, make a chart to answer the following questions.

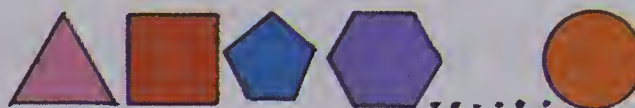
- a. How many sides does the figure have?
- b. How many vertices or angles does the figure have?
- c. How many lines of symmetry does each figure have?



7. Melvin thinks a circle has 4 lines of symmetry. What do you think?



8. Marsha drew this pattern to go from polygons to the circle. What is her idea?

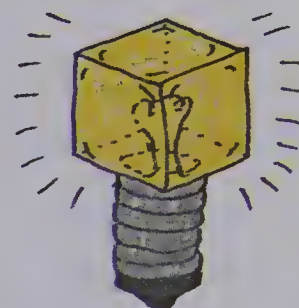


Faces, Edges, and Vertices

A **face** of a solid is a flat surface.

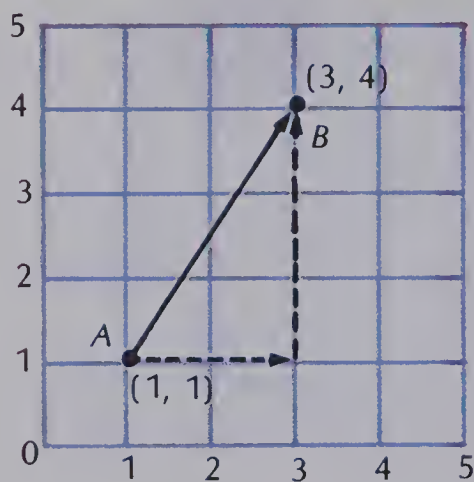
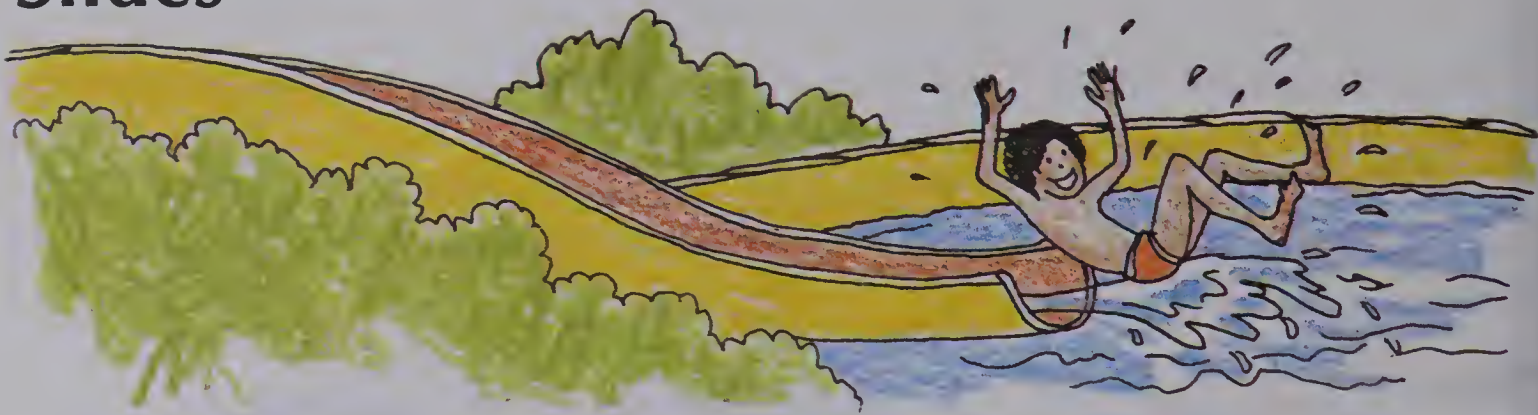
Copy and complete the chart.

Solid	Kinds of Faces	Number of Faces	Number of Vertices	Number of Edges
cube	squares	6	8	12
tetrahedron				
triangle-based prism				
square-based pyramid				

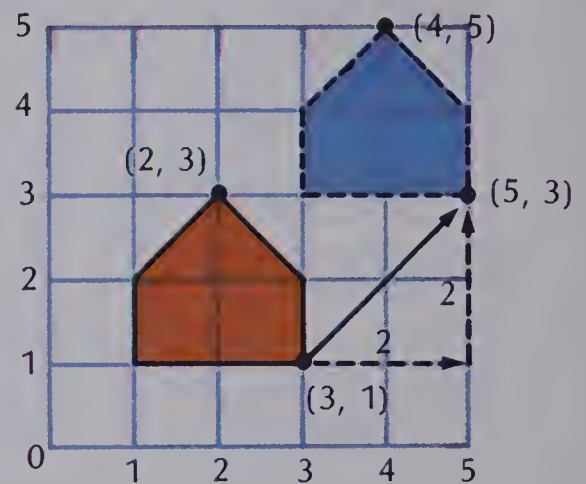


Add the number of faces and vertices for each solid. Do you notice a pattern?

Slides



Starting at point A, move right 2 and up 3 to point B. Point B is the **image** of point A after a **slide**.



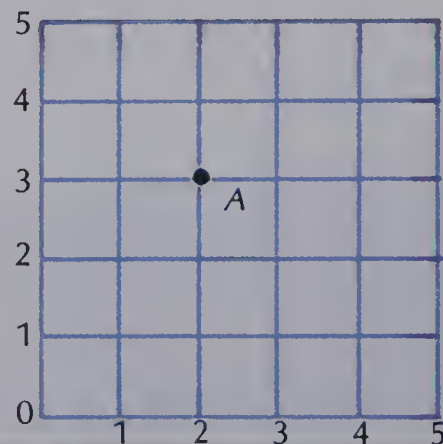
The blue pentagon is the **image** of the red pentagon after a **slide** of **right 2 up 2**.

EXERCISES

Point A is at (2, 3).

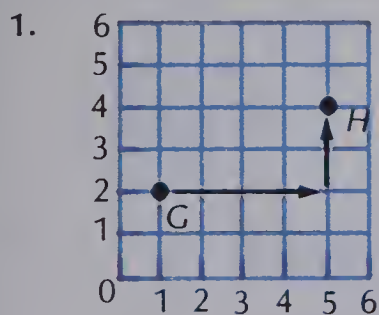
Name the coordinates of its image after these slides.

1. right 2, up 1
2. right 3, down 2
3. right 1, down 3
4. right 3
5. left 1, up 2
6. left 2, up 1
7. left 1, down 2
8. down 3

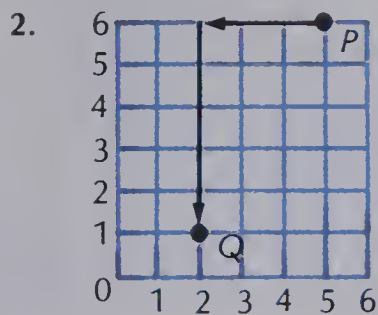


PRACTICE

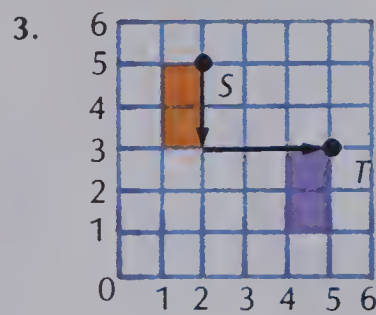
Name each slide.



right ■, up ■

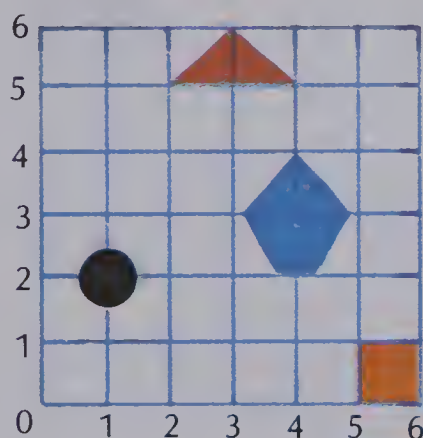



left ■, down ■



down ■, right ■

Copy the graph. Slide the figure as indicated and draw the image.



4. Slide  left 2, down 4.

5. Slide  right 3, up 3.

6. Slide  left 5, up 4.

7. Slide  right 1, down 1.

REVIEW

G1

Draw each.

1. ray AB

2. line MN

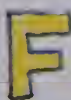
3. line segment PQ

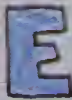
G2

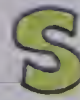
Copy each letter.

Draw any lines of symmetry you can find.

4. 

5. 

6. 

7. 

G3

Draw each.

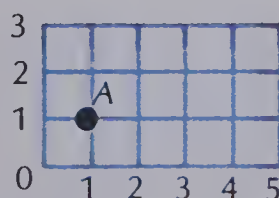
8. a triangle

9. a quadrilateral

10. a hexagon

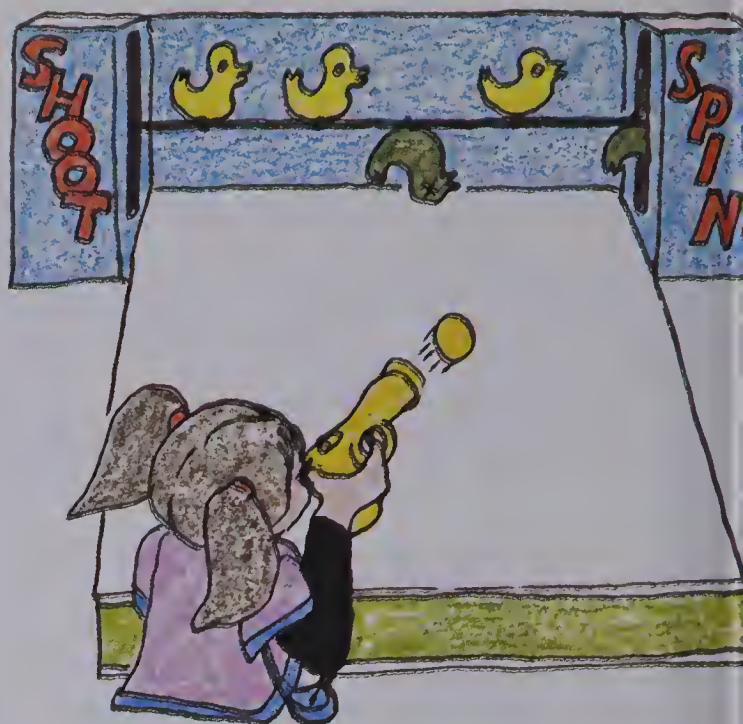
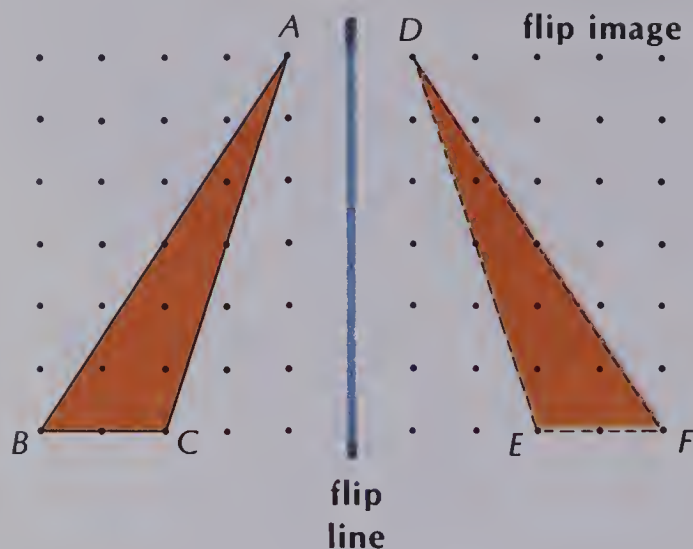
G4

11. Name the image of point A after sliding it right 4 and up 2.



Flips

We can flip a triangle over a line.



The second triangle is the **flip image** of the first.
The image points are marked D , E , and F .

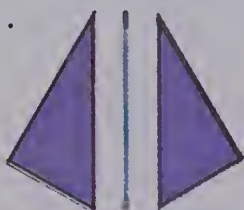
These points match: A and D , B and F , C and E .

These segments match: AB and DF , AC and DE , BC and FE .

EXERCISES

Does the diagram show a flip?

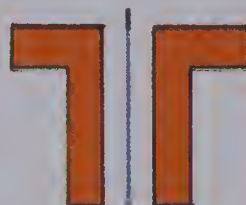
1.



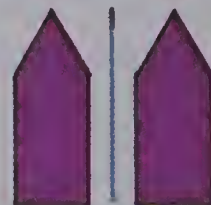
2.



3.



4.

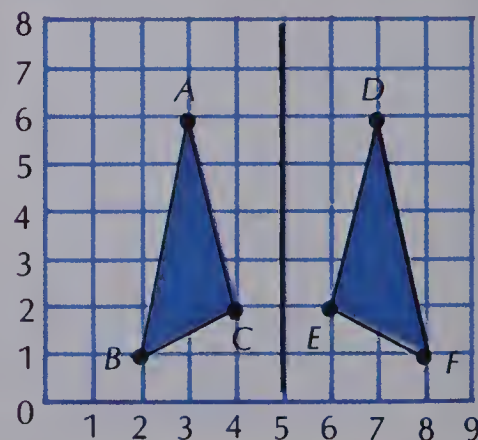


Write coordinates for each.

5. the flip image of point A
6. the flip image of point B
7. the flip image of point C

Write another name for each.

8. the flip image of segment BC
9. the flip image of segment AC



PRACTICE

Are these flip images? Use tracing paper.

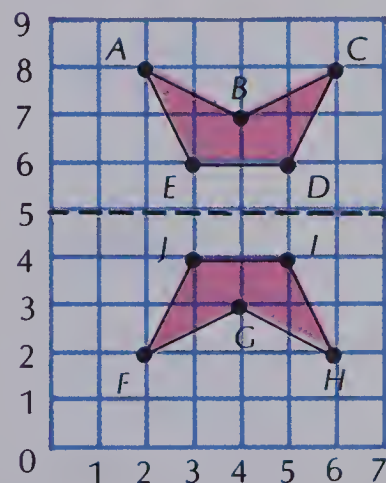
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

Write coordinates for each.

9. the flip image of point *A*
10. the flip image of point *B*
11. the flip image of point *C*
12. the flip image of point *D*
13. the flip image of point *E*

Write another name for each.

14. the flip image of segment *BC*
15. the flip image of segment *AD*
16. the flip image of figure *ABCDE*



Flipped Words

Half of these symmetric words are hidden.
What are the words?

W O O V E N D O O V E N

D T I E

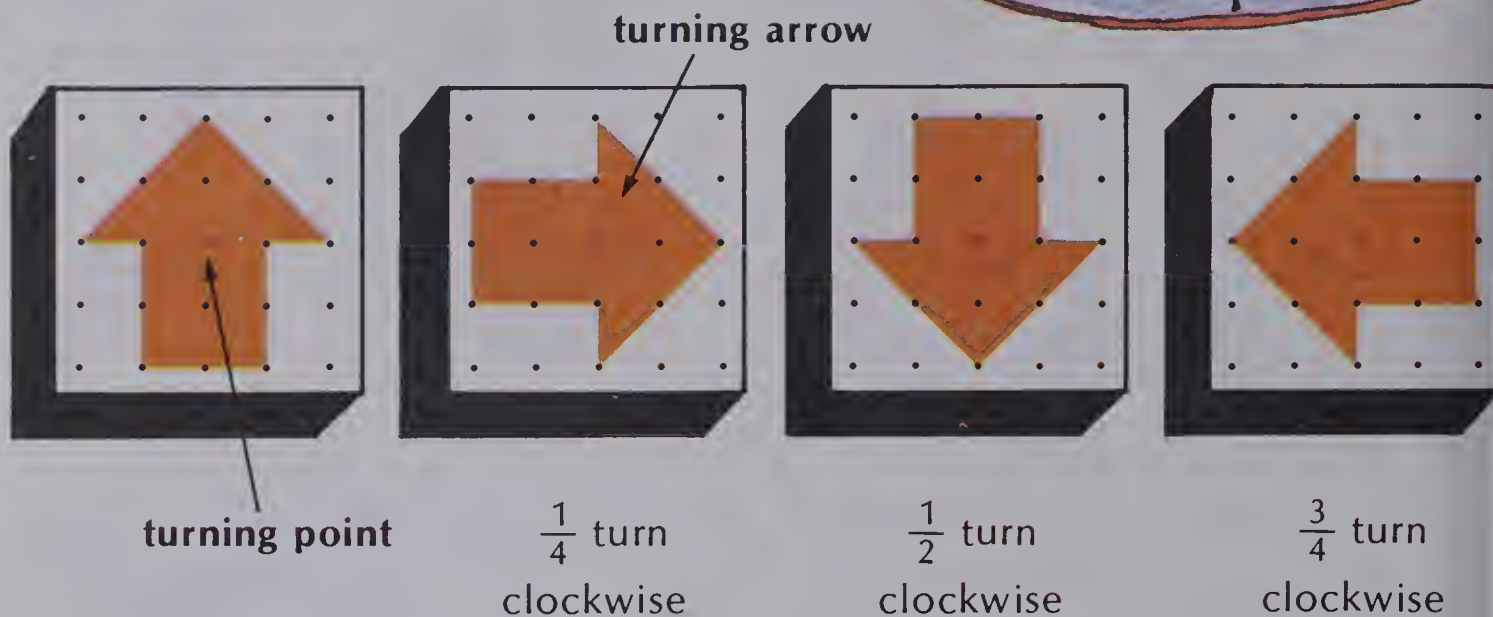
W O O D E N

T O M A T O

T O M A T O

Turns

We can **turn** a figure around a point either **clockwise** or **counter-clockwise**.

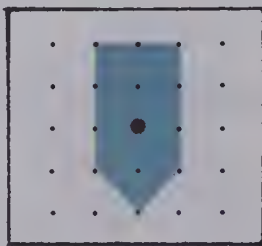
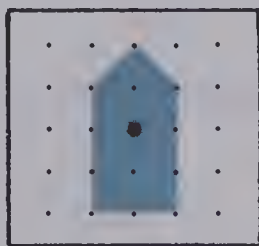


EXERCISES

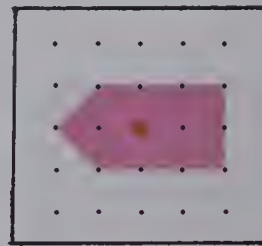
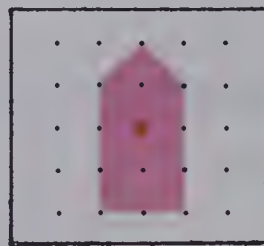
Write $\frac{1}{4}$ turn, $\frac{1}{2}$ turn, or $\frac{3}{4}$ turn. Each turn is clockwise.



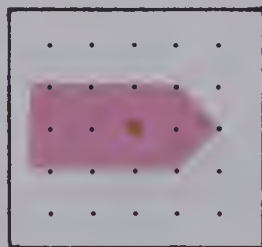
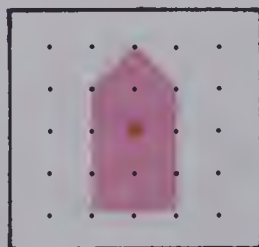
1.



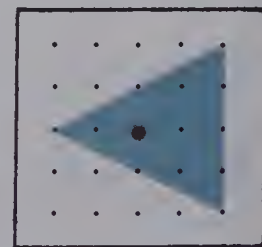
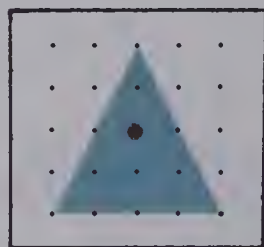
2.



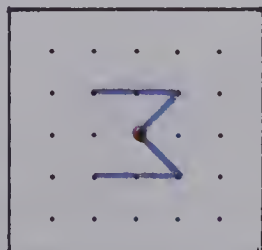
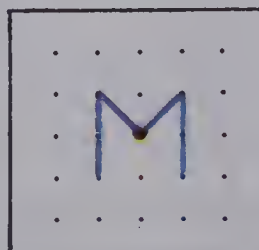
3.



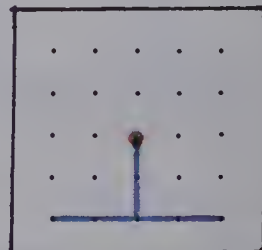
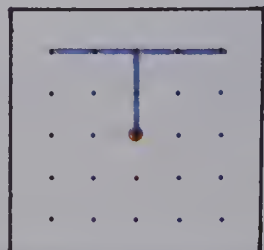
4.



5.

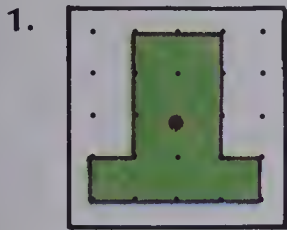


6.

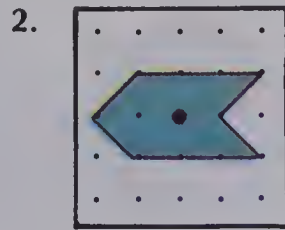


PRACTICE

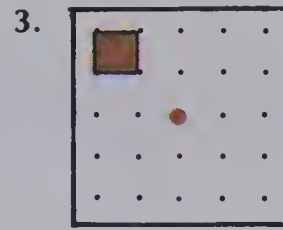
Draw the turn indicated.



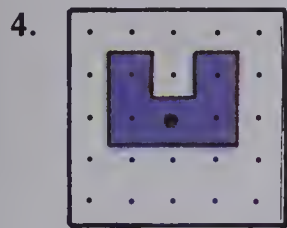
$\frac{1}{4}$ turn clockwise



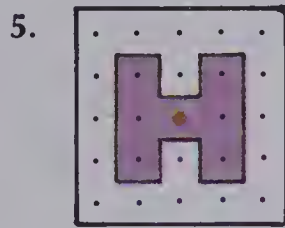
$\frac{1}{2}$ turn



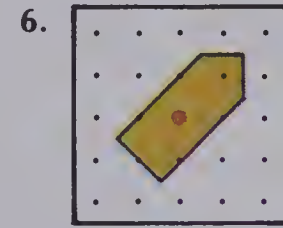
$\frac{3}{4}$ turn counter-clockwise



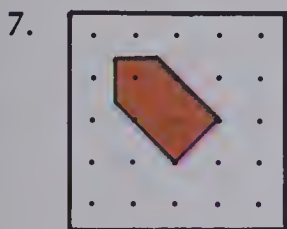
$\frac{1}{2}$ turn



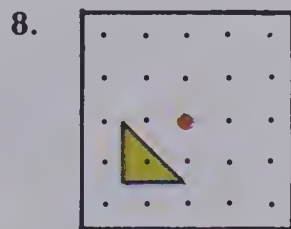
$\frac{1}{4}$ turn



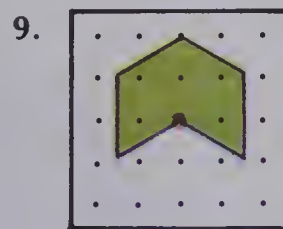
$\frac{3}{4}$ turn



$\frac{1}{2}$ turn



$\frac{3}{4}$ turn clockwise

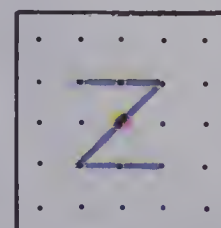
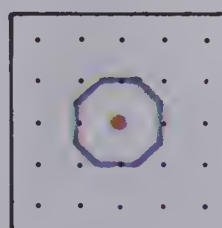
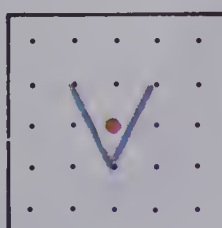
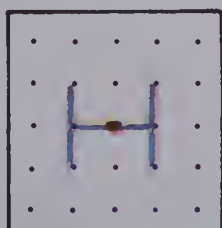
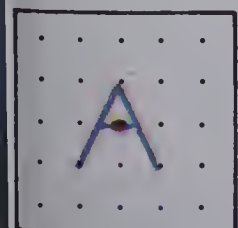
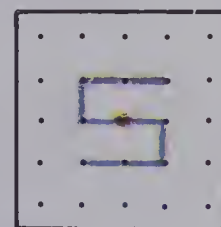
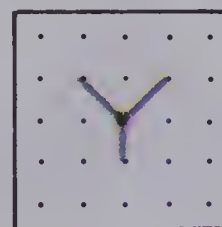
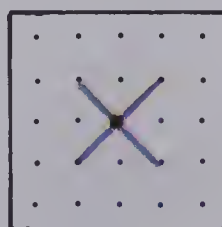
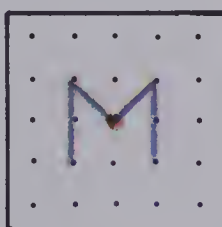
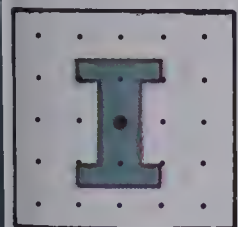


$\frac{1}{4}$ turn clockwise

Turning Letters

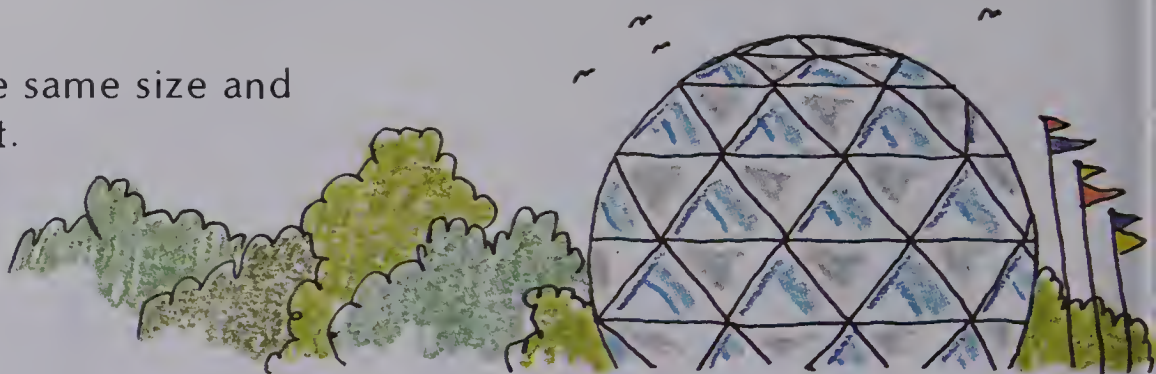
Show the letters after a $\frac{1}{2}$ turn.

Which look the same?



Congruence

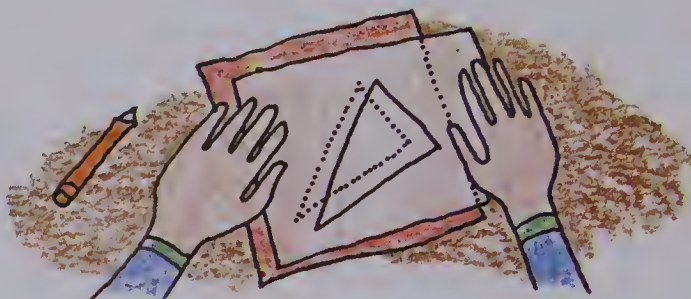
Figures that have the same size and shape are **congruent**.



congruent angles



congruent triangles

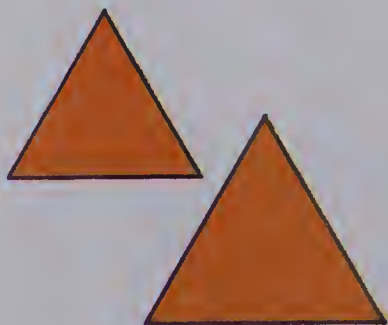


The slide, flip and turn images of a figure are congruent.

EXERCISES

Are the figures congruent? Trace the first and compare.

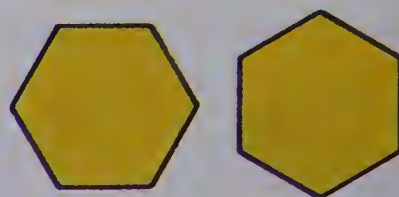
1.



2.



3.



4.



5.



6.



PRACTICE

Are the figures congruent?

1.



2.



3.



4.



5.



6.



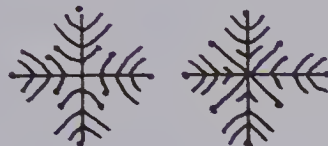
7.



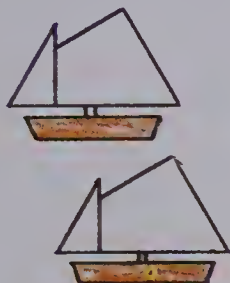
8.



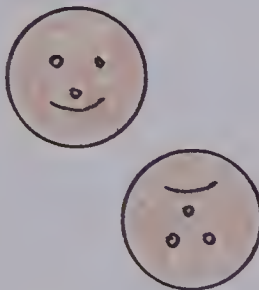
9.



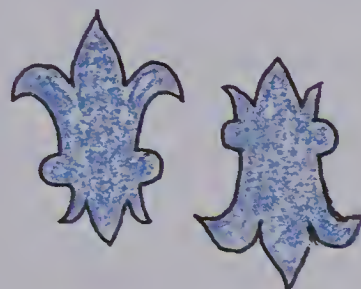
10.



11.



12.

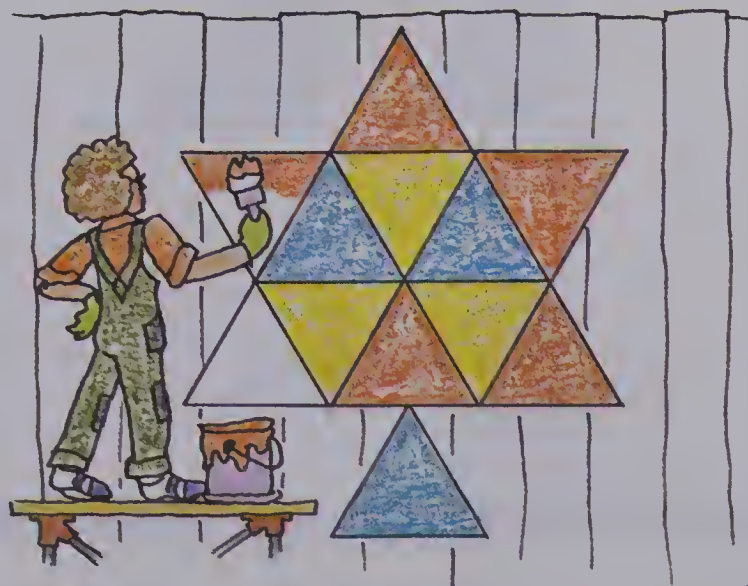


Triangle Challenge

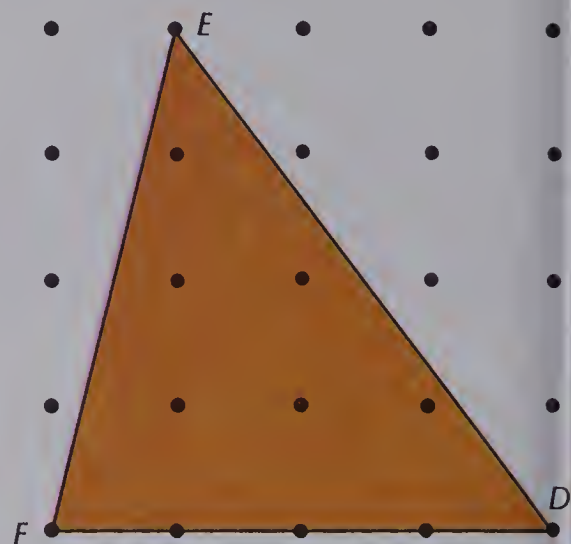
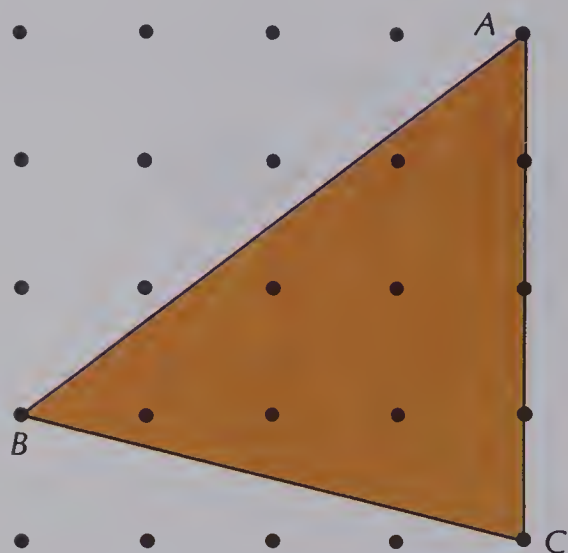
How many triangles are there in this figure? How many are congruent to each of these triangles?

a.

b.



Matching Parts of Congruent Figures



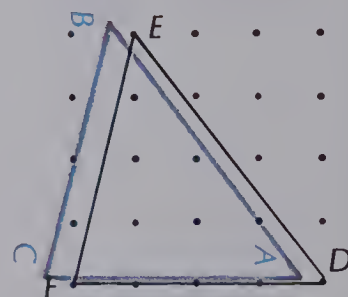
These two triangles are congruent.

These vertices and sides match.

A and D , B and E , C and F

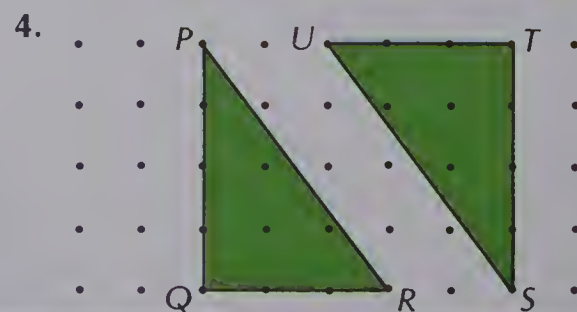
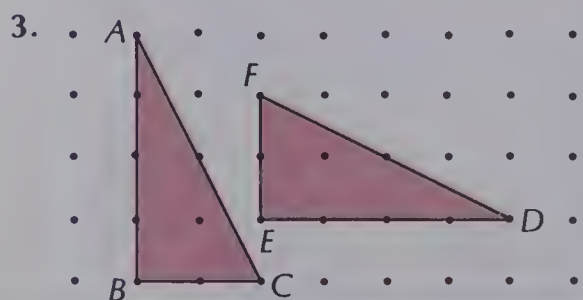
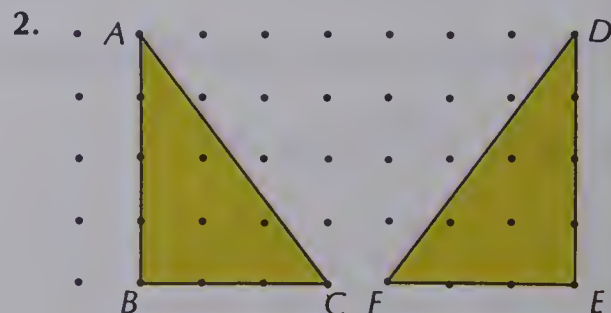
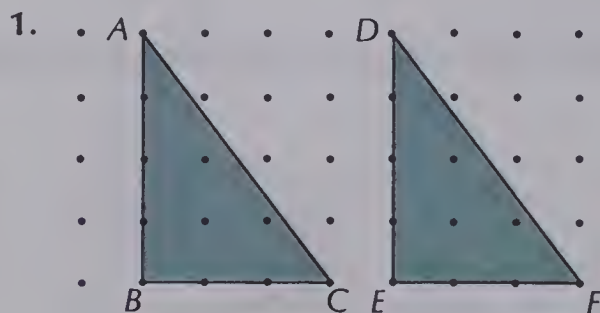
AB and DE , BC and EF , AC and DF

Matching sides are the same length.



EXERCISES

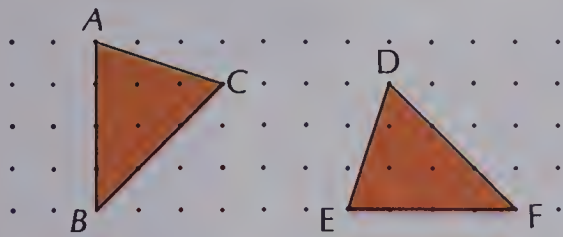
Name the vertices and sides that match.



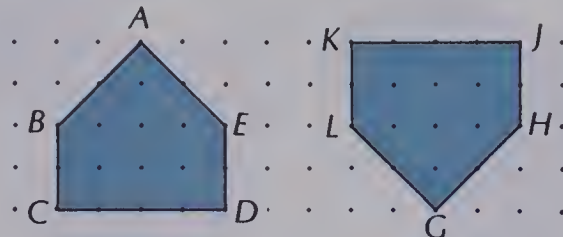
PRACTICE

Name one pair of matching vertices and one pair of matching sides.

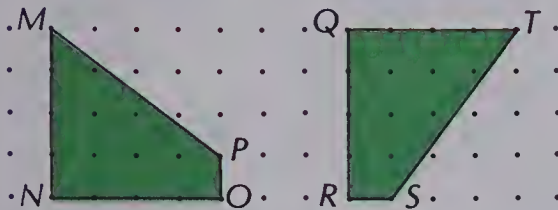
1.



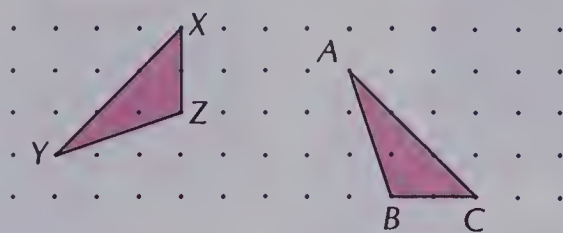
2.



3.



4.



5. Draw a triangle. Mark the vertices A , B , and C .
 Draw another triangle congruent to the first one.
 Slide the new triangle. Turn it.
 Mark the new vertices D , E , and F so that D matches A , E matches B , and F matches C .

REVIEW

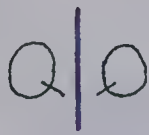
Does the diagram suggest a flip?

G5

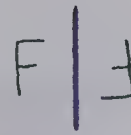
1.



2.



3.



Write $\frac{1}{4}$ turn, $\frac{1}{2}$ turn, or $\frac{3}{4}$ turn.

G6

4.



5.



6.



Is the figure congruent to the first one?

G7

7.



8.

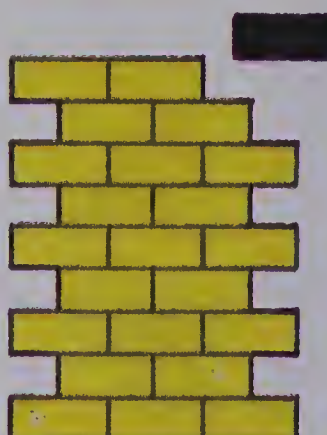
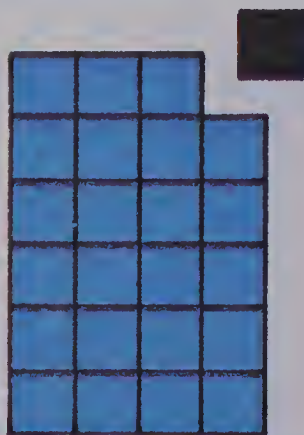


9.



Tiling Patterns

Tiling patterns completely cover a surface.



The congruent figures above fit together to **tile** a flat surface.

EXERCISES

Trace these figures to test if sets of each one will tile a flat surface.

1.



2.



3.



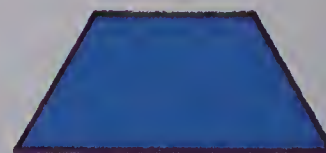
4.



5.



6.



7.



8.



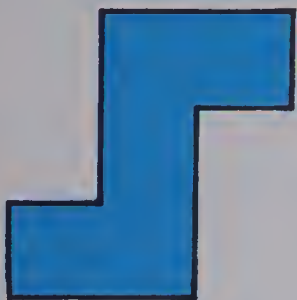
9.



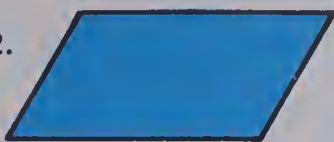
PRACTICE

Which figures will tile a flat surface?

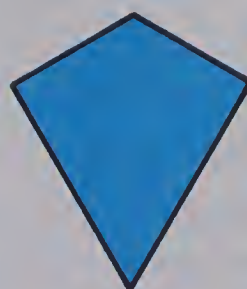
1.



2.



3.



4.



5.



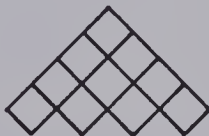
6.



Follow the pattern.

How many tiles are needed for the next figure?

7.



?

8.



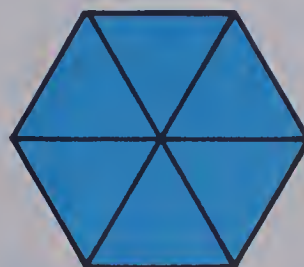
?

Polygons

Make six different polygons from cutouts of this triangle.



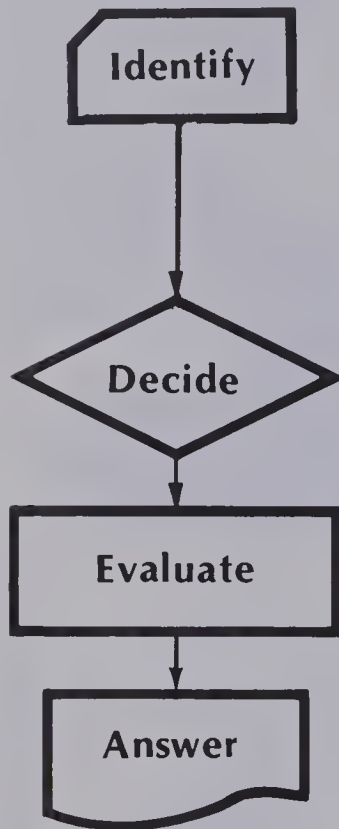
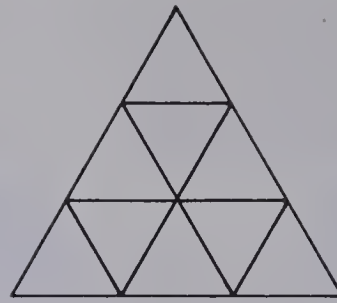
Example:



hexagon

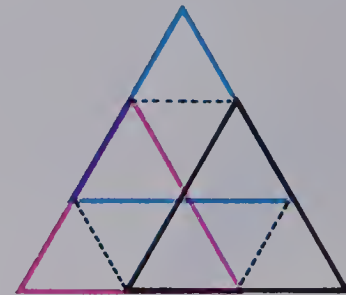
Using Diagrams

How many triangles are there in the figure?



There are three sizes of triangles in the figure.
a large one medium ones small ones

Count each type and add.
1 big triangle
3 medium triangles
9 small triangles



$$1 + 3 + 9 = 13$$

There are 13 triangles in the figure.

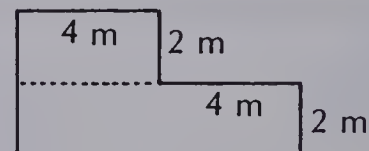
EXERCISES

Use the diagrams to solve the problems.

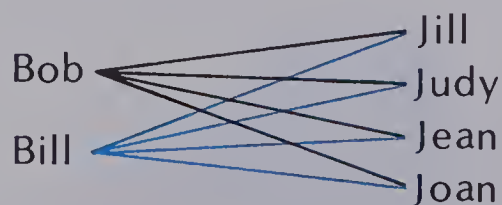
1. How many rectangles?



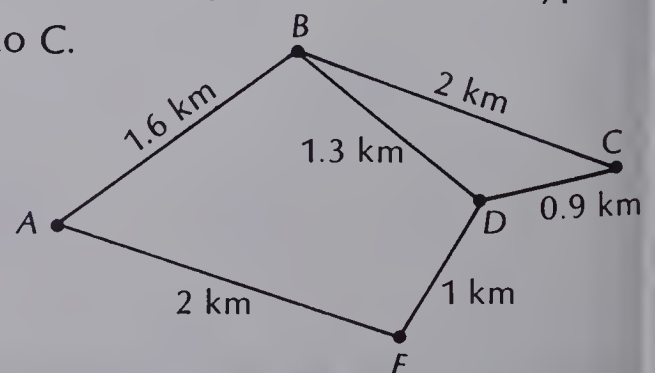
2. What is the area?



3. How many couples?



4. Find the shortest route from A to C.



PRACTICE

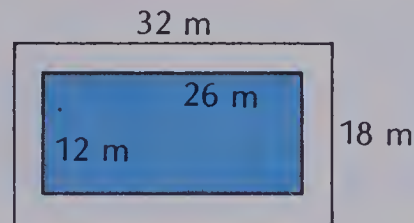
Solve each of the following problems. If a diagram does not accompany the problem, draw one before solving it. Be sure that your diagram is labelled with all the facts.

1. How many different rectangles can you find in this diagram?



2. One Sunday afternoon, Sally left her house and went on a walk that took her 6 blocks North, 5 blocks East, 3 blocks South, 4 blocks West, and 3 blocks South. How far was she from home at the end of the walk, and in which direction?

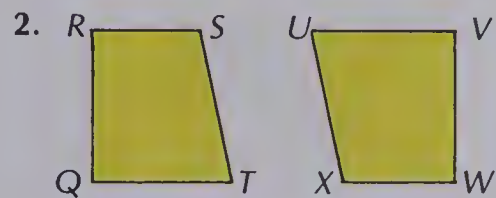
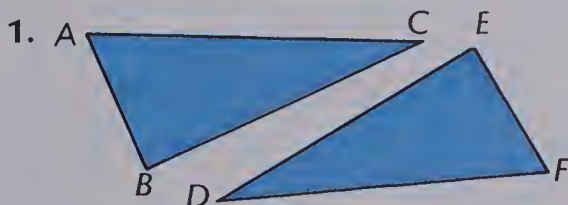
3. Trudy and Ted have cut the portion of the lawn that is shaded in the diagram. What is the area of the part they still have to cut?



REVIEW

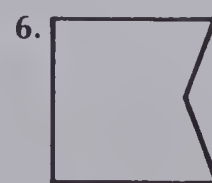
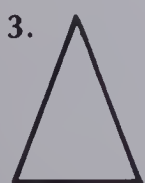
Name one pair of matching vertices and one pair of matching sides.

G8



Will the figure tile a surface?

G9



TEST

UNIT 10

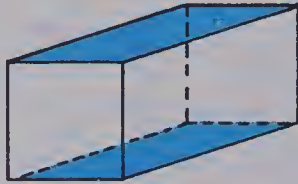
Draw each.

1. line segment AB

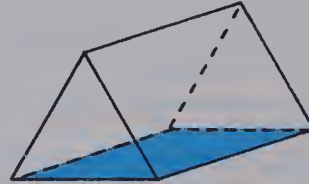
2. ray PQ

3. line XY

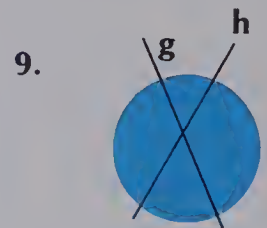
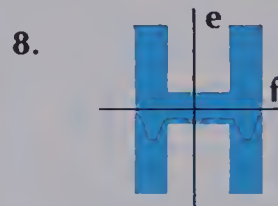
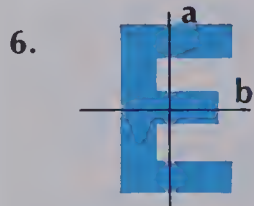
4. How many vertices?



5. How many edges?



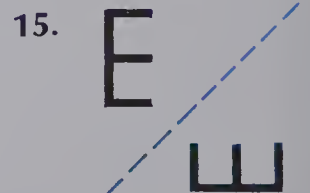
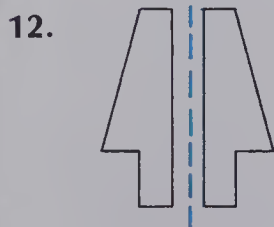
Which are lines of symmetry?



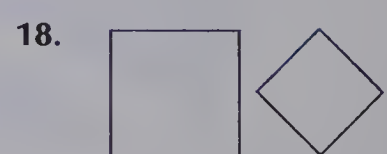
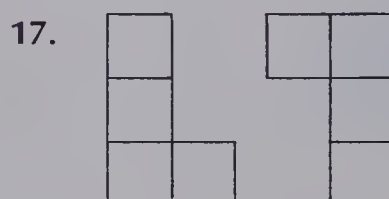
10. What figure has 5 sides and 5 vertices?

11. What figure has 4 congruent sides, 4 vertices, and 4 square corners?

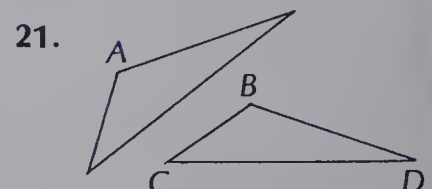
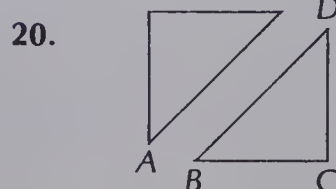
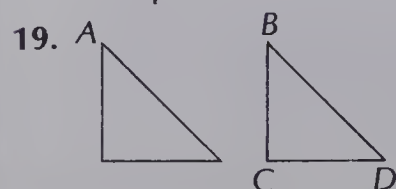
Name the motion (slide, flip, or turn).



Are these pairs of figures congruent?



Which point matches A?



MULTIPLICATION

Multiply.

$$\begin{array}{r} 1. \quad 0.03 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 0.06 \\ \times 24 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 0.42 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 0.48 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 0.74 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 1.04 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 2.34 \\ \times 31 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 5.67 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 4.92 \\ \times 49 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 6.75 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 5 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 13 \\ \times 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 48 \\ \times 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 137 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 258 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 0.1 \\ \times 0.2 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 0.3 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 0.4 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 0.5 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 0.7 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 2.3 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 13.3 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 4.5 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 37.6 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 7.8 \\ \times 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 26. \quad 4.2 \\ \times 2.1 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 31.5 \\ \times 4.3 \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 3.8 \\ \times 5.4 \\ \hline \end{array}$$

$$\begin{array}{r} 29. \quad 94.2 \\ \times 6.7 \\ \hline \end{array}$$

$$\begin{array}{r} 30. \quad 6.3 \\ \times 7.1 \\ \hline \end{array}$$

Divide.

$$31. \quad 2 \overline{)1.6}$$

$$32. \quad 4 \overline{)0.92}$$

$$33. \quad 5 \overline{)4.80}$$

$$34. \quad 3 \overline{)86.7}$$

$$35. \quad 6 \overline{)32.16}$$

Use division to express each fraction in decimal form.

$$36. \quad \frac{1}{2}$$

$$37. \quad \frac{1}{4}$$

$$38. \quad \frac{3}{5}$$

$$39. \quad \frac{3}{4}$$

$$40. \quad \frac{7}{10}$$

Solve.

41. 4 tenths of the students have pets.
3 tenths of the pets are dogs.
What part of all the students have dogs?

42. A board 3.6 m long is to be cut into
6 equal parts. How long will each part be?

UNIT 11









DECIMALS & RATIOS



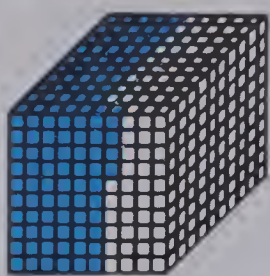
High Cuisine

Tower Restaurant	
Menu	
Sandwiches	
Ham	\$2.50
Tomato	\$2.00
Cheese	\$1.50
Salad	\$2.25
Soup	\$1.75
Beverages	
Milk	\$0.65
Orange Juice . . .	\$0.95
Tomato Juice . . .	\$0.75
Hot Dog	\$1.80
Hamburger	\$3.75
Omelette	\$2.35
Quiche	\$3.50
Dessert	
Ice Cream	\$1.35
Cake	\$1.55
Pie	\$1.45
Fruit Salad	\$1.25

What is the total amount of each check?

1.	2.	3.	4.
Check 	Check 	Check 	Check 
1 Ham Sandwich	2 Soups	3 Salads	1 Omelette
1 Salad	2 Salads	2 Milks	2 Hamburgers
1 Milk	2 Milks	1 Tomato Juice	3 Tomato Juices
		3 Ice Creams	1 Pie
			

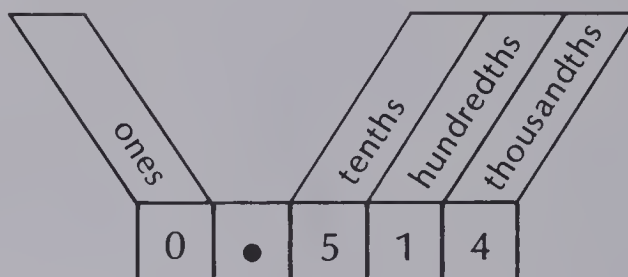
Thousandths



0.514

Each small cube is $\frac{1}{1000}$ of the large cube.

One thousandth may be written as 0.001.



$$\frac{514}{1000} = 0.514$$

five hundred fourteen thousandths

To round to the nearest hundredth, check the thousandths digit.

4 or less rounds down: $0.514 \rightarrow 0.51$

5 or more rounds up: $0.515 \rightarrow 0.52$

EXERCISES

Write the decimal.

1. one hundred twenty-three thousandths
2. six hundred nine thousandths
3. fifteen thousandths
4. three thousandths
5. eight **and** eighty-five thousandths
6. $\frac{293}{1000}$
7. $\frac{34}{1000}$
8. $\frac{9}{1000}$
9. $\frac{1018}{1000}$

Compare using $<$ or $>$.

10. $0.832 \bullet 0.823$
11. $0.402 \bullet 0.42$
12. $0.035 \bullet 0.305$
13. $4.049 \bullet 4.062$
14. $15.608 \bullet 15.68$
15. $4.892 \bullet 3.893$

Round to the nearest hundredth.

16. 0.491
17. 6.375
18. 7.497
19. 8.996

PRACTICE

Write the decimal.

1. $\frac{401}{1000}$

2. $\frac{6}{1000}$

3. $\frac{200}{1000}$

4. $\frac{88}{1000}$

5. $\frac{4805}{1000}$

Write as a fraction with a denominator of 1000.

6. 0.468

7. 0.375

8. 0.17

9. 1.362

10. 5.001

Copy and complete using < or >.

11. 18.492 ● 18.429

12. 37.104 ● 36.985

13. 6.005 ● 6.05

14. 0.001 ● 0.01

15. 395.108 ● 396.108

16. 8.201 ● 8.097

Round to the nearest hundredth.

17. 0.468

18. 0.295

19. 8.095

20. 5.998

21. 14.693

Write the measurement in metres. (1 mm = 0.001 m)

22. 39 mm = ■ m

23. 156 mm = ■ m

24. 6 mm = ■ m

25. 78 mm = ■ m

26. 1000 mm = ■ m

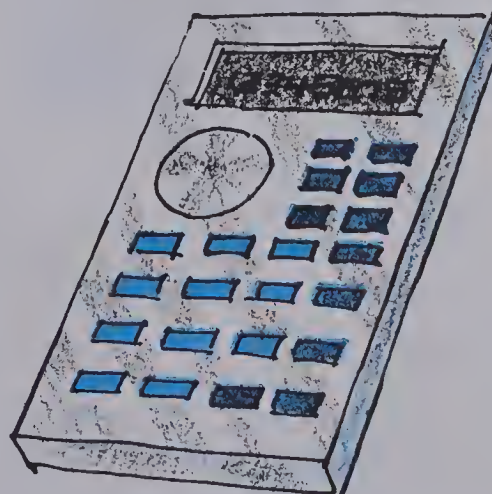
27. 8030 mm = ■ m

28. In Canada, 75 out of 1000 people work for the government.

Write the decimal to show the part of the population that works for the government.

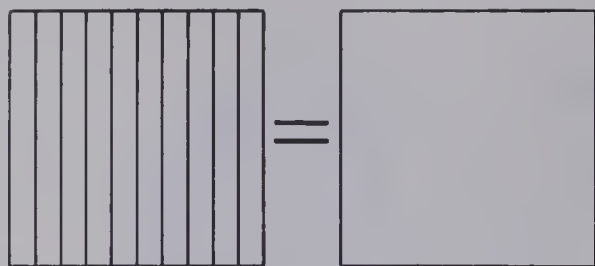
USING THE CALCULATOR

Display	Operation	Display		Result
289	÷	1000	=	
3432	÷	1000	=	
86	÷	1000	=	
7	÷	1000	=	
5864	÷	1000	=	
12 592	÷	1000	=	

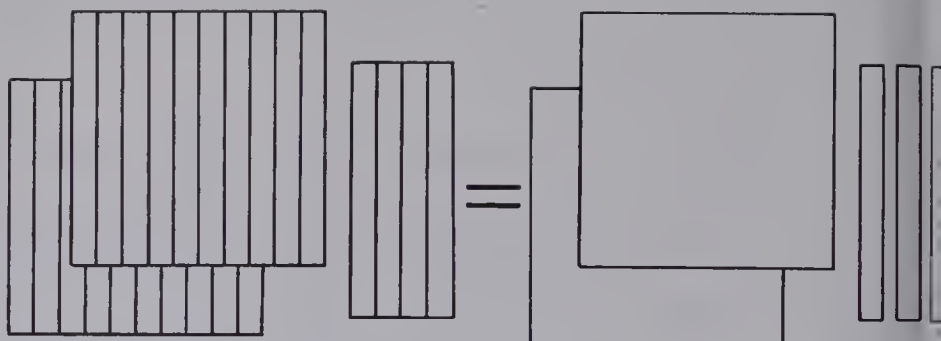


What is the rule?

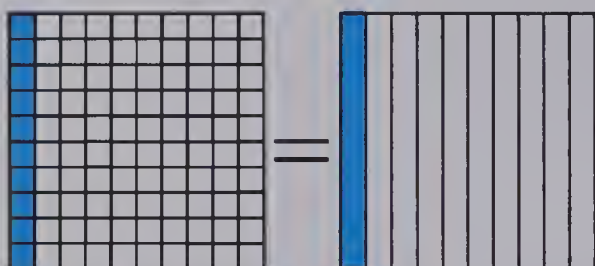
Regrouping



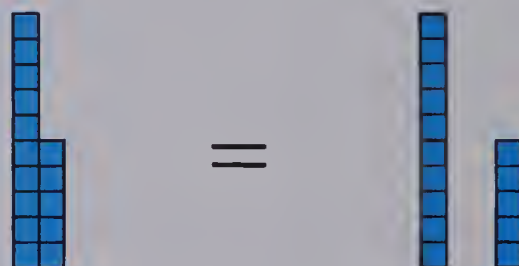
$$10 \text{ tenths} = 1$$



$$24 \text{ tenths} = 2 \text{ ones} + 4 \text{ tenths}$$



$$10 \text{ hundredths} = 1 \text{ tenth}$$



$$15 \text{ hundredths} = 1 \text{ tenth} + 5 \text{ hundredths}$$

$$10 \text{ thousandths} = 1 \text{ hundredth}$$

$$10 \text{ hundredths} = 1 \text{ tenth}$$

$$10 \text{ tenths} = 1$$

EXERCISES

Copy and complete each table.

1.

	ones	tenths
11 tenths		
23 tenths		
49 tenths		
70 tenths		
103 tenths		

2.

	hundredths	thousandths
16 thousandths		
30 thousandths		
56 thousandths		
89 thousandths		
114 thousandths		

Regroup.

- 1 one + 18 tenths = ■ ones + ■ tenths
- 3 tenths + 12 hundredths = ■ tenths + ■ hundredths
- 9 tenths + 32 hundredths = ■ ones + ■ tenths + ■ hundredths
- 2 hundredths + 19 thousandths = ■ hundredths + ■ thousandths
- 8 hundredths + 40 thousandths = ■ tenths + ■ hundredths

PRACTICE

Regroup and write each numeral in standard form.

	ones	tenths	hundredths	thousandths
1.	3	.	9	24
2.	0	.	13	2
3.	6	.	40	5
4.	0	.	9	4
5.	0	.	8	127
6.	5	.	0	9

Regroup.

7. 5 tenths + 4 hundredths = 4 tenths + ■ hundredths
8. 3 ones + 9 tenths = 2 ones + ■ tenths
9. 1 tenth + 5 hundredths = ■ tenths + 15 hundredths
10. 8 hundredths + 0 thousandths = ■ hundredths + 20 thousandths
11. 7 tenths + 0 hundredths + 3 thousandths
= ■ tenths + 9 hundredths + 13 thousandths

Getting to the Top

Write 1 to 8 in your notebook.
Using the diagram below, place a ruler on the dots that join equal values. The ruler will pass through a number and a letter. Write the letters in order to find out how to get to the top.



- | | | | | |
|---------------------|-----|-----|-----|----------------------------|
| 4 tenths • | □ V | | | • 80 thousandths |
| 5 ones • | △ 3 | | □ E | • 1 one + 16 tenths |
| 30 thousandths • | □ A | | □ E | • 500 hundredths |
| 16 tenths • | | △ 1 | □ T | • 3 tenths + 20 hundredths |
| 8 hundredths • | | △ 8 | △ 7 | • 3 tenths + 10 hundredths |
| 5 tenths • | □ O | | | • 80 tenths |
| 2 ones + 6 tenths • | △ 6 | | △ 2 | • 1 one + 6 tenths |
| 8 ones • | □ L | | □ R | • 3 hundredths |
| | | | △ 5 | |

Adding and Subtracting Thousandths

Add: $14.265 + 8.708$.

Add thousandths.
Regroup!

$$\begin{array}{r} 14.265 \\ + 8.708 \\ \hline 3 \end{array}$$

Add hundredths.

$$\begin{array}{r} 14.265 \\ + 8.708 \\ \hline 73 \end{array}$$

Add tenths.

$$\begin{array}{r} 14.265 \\ + 8.708 \\ \hline 973 \end{array}$$

Add whole numbers.
Regroup!

$$\begin{array}{r} 14.265 \\ + 8.708 \\ \hline 22.973 \end{array}$$

Subtract: $61.592 - 48.378$.

Subtract thousandths.
Regroup!

$$\begin{array}{r} 61.5\cancel{9}\cancel{2} \\ - 48.378 \\ \hline 4 \end{array}$$

Subtract hundredths.

$$\begin{array}{r} 61.5\cancel{9}\cancel{2} \\ - 48.378 \\ \hline 14 \end{array}$$

Subtract tenths.

$$\begin{array}{r} 61.5\cancel{9}\cancel{2} \\ - 48.378 \\ \hline 214 \end{array}$$

Subtract whole numbers.
Regroup!

$$\begin{array}{r} 511.812 \\ - 48.378 \\ \hline 13.214 \end{array}$$

When adding or subtracting decimals: **align the decimal points.**

Add or subtract as with whole numbers.

EXERCISES

Find the sum.

1.
$$\begin{array}{r} 0.523 \\ + 0.416 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 0.382 \\ + 0.25 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4.579 \\ + 1.328 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 2.415 \\ + 3.196 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 12.86 \\ + 4.475 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 45.729 \\ + 28.3 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 632.795 \\ + 15.408 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 286.391 \\ + 500.419 \\ \hline \end{array}$$

Find the difference.

9.
$$\begin{array}{r} 0.315 \\ - 0.102 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 0.82 \\ - 0.617 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4.984 \\ - 1.697 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 8.257 \\ - 2.619 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 47.683 \\ - 5.2 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 23.14 \\ - 16.989 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 957.104 \\ - 35.286 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 167.5 \\ - 132.948 \\ \hline \end{array}$$

PRACTICE

Add or subtract.

$$\begin{array}{r} 1. \quad 5.368 \\ + 0.421 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 56.749 \\ - 30.206 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 75.428 \\ + 6.932 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 714.58 \\ + 60.932 \\ \hline \end{array}$$

$$5. \quad 0.309 + 0.261$$

$$6. \quad 0.426 - 0.12$$

$$7. \quad 0.450 + 0.1$$

$$\begin{array}{r} 8. \quad 43.627 \\ + 5.195 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 92.513 \\ - 47.816 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 539.2 \\ - 427.817 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 92.355 \\ + 83.467 \\ \hline \end{array}$$

$$12. \quad 5.892 - 3.6$$

$$13. \quad 5.682 + 4.237$$

$$14. \quad 73.468 - 1.655$$

$$\begin{array}{r} 15. \quad 408.26 \\ - 75.391 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 15.833 \\ + 20.694 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 60.354 \\ - 38.897 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 9.581 \\ - 8.684 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 55.0 \\ - 32.109 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 600.409 \\ + 80.6 \\ \hline \end{array}$$

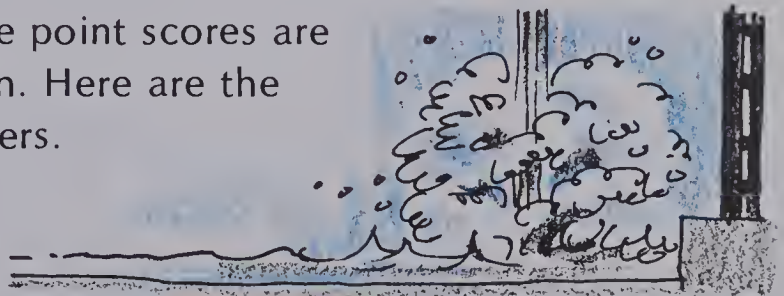
$$\begin{array}{r} 21. \quad 8.349 \\ + 91.572 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 672.001 \\ - 38.435 \\ \hline \end{array}$$

Solve.

23. In Olympic Tower Diving, the point scores are kept to the nearest hundredth. Here are the scores of the top three finishers.

Gold	Silver	Bronze
600.51	576.94	548.61

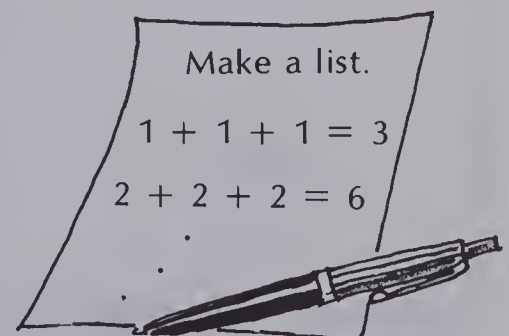


By how much did the gold medalist win?

Digits Do It

Each letter represents a different digit. Can you find the digit each letter represents?

$$\begin{array}{r} AB.CAB \\ AB.CAB \\ + AB.CAB \\ \hline DDD.DDD \end{array}$$



Multiplying Thousandths

A pasture should be irrigated to a depth of 0.635 cm of water a day. What is the total depth of water needed in a week?



Multiply.

Count the decimal places in the factors.

Put the decimal point in the answer.

$$\begin{array}{r} 0.635 \\ \times \quad 7 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \ 2 \ 3 \\ 0.635 \\ \times \quad 7 \\ \hline 4445 \end{array}$$

$$3$$

$$\begin{array}{r} 0.635 \\ \times \quad 7 \\ \hline 4.445 \end{array}$$

The total depth of water needed in a week is 4.445 cm.

Check by estimating:

0.635 is about 0.6.

7×0.635 is about 7×0.6 or 4.2.

EXERCISES

Multiply.

1. $\begin{array}{r} 0.2 \\ \times \quad 4 \\ \hline \end{array}$

2. $\begin{array}{r} 0.21 \\ \times \quad 4 \\ \hline \end{array}$

3. $\begin{array}{r} 0.214 \\ \times \quad 4 \\ \hline \end{array}$

4. $\begin{array}{r} 0.3 \\ \times \quad 2 \\ \hline \end{array}$

5. $\begin{array}{r} 0.34 \\ \times \quad 2 \\ \hline \end{array}$

6. $\begin{array}{r} 0.342 \\ \times \quad 2 \\ \hline \end{array}$

7. $\begin{array}{r} 0.7 \\ \times \quad 5 \\ \hline \end{array}$

8. $\begin{array}{r} 0.73 \\ \times \quad 5 \\ \hline \end{array}$

9. $\begin{array}{r} 0.736 \\ \times \quad 5 \\ \hline \end{array}$

10. $\begin{array}{r} 0.692 \\ \times \quad 4 \\ \hline \end{array}$

11. $\begin{array}{r} 0.918 \\ \times \quad 2 \\ \hline \end{array}$

12. $\begin{array}{r} 0.307 \\ \times \quad 8 \\ \hline \end{array}$

13. $\begin{array}{r} 0.572 \\ \times \quad 6 \\ \hline \end{array}$

14. $\begin{array}{r} 0.196 \\ \times \quad 7 \\ \hline \end{array}$

15. $\begin{array}{r} 0.278 \\ \times \quad 9 \\ \hline \end{array}$

16. $\begin{array}{r} 1.079 \\ \times \quad 4 \\ \hline \end{array}$

17. $\begin{array}{r} 2.108 \\ \times \quad 5 \\ \hline \end{array}$

18. $\begin{array}{r} 3.007 \\ \times \quad 6 \\ \hline \end{array}$

19. $\begin{array}{r} 5.040 \\ \times \quad 3 \\ \hline \end{array}$

20. $\begin{array}{r} 7.002 \\ \times \quad 7 \\ \hline \end{array}$

PRACTICE

Copy the answer and put in the decimal point.

1. 0.412	2. 0.501	3. 0.42	4. 1.91	5. 0.7
$\times 5$	$\times 7$	$\times 8$	$\times 3$	$\times 0.6$
2060	3507	336	573	42

Find the product.

6. 0.175	7. 0.086	8. 0.317	9. 0.912	10. 0.086
$\times 2$	$\times 4$	$\times 5$	$\times 7$	$\times 7$
11. 0.009	12. 0.003	13. 0.017	14. 0.028	15. 0.006
$\times 6$	$\times 3$	$\times 1$	$\times 4$	$\times 5$
16. 0.178	17. 0.304	18. 0.825	19. 0.143	20. 0.076
$\times 43$	$\times 79$	$\times 81$	$\times 56$	$\times 27$

Solve.

21. A crop is to be irrigated with 0.895 cm of water each day for a week. What is the depth of the water needed?

REVIEW

Copy and complete.

N19

1. $0.036 = \frac{\blacksquare}{1000}$	2. $0.587 \bullet 0.593$	3. $9 \text{ mm} = \blacksquare \text{ m}$
--	--------------------------	--

Regroup.

N20

4. 3 tenths + 4 hundredths = 2 tenths + \blacksquare hundredths	5. 8 hundredths + 2 thousandths = \blacksquare hundredths + 12 thousandths
---	--

Add or subtract.

A44

6. 5.698	7. 93.455	8. 7.328	9. 112.05
$+ 0.404$	$+ 14.58$	$- 1.609$	$- 83.156$

Multiply.

A45

10. 0.025	11. 6.708	12. 12.095	13. 0.369
$\times 5$	$\times 9$	$\times 10$	$\times 28$

Rates

A tower elevator can take passengers to the top **at the rate** of 15 people **per** trip.

Two trips of the elevator take
 2×15 people or 30 people to the top.



EXERCISES

How many people?

1. 15 people **per** elevator, 6 elevators
2. 12 people **per** elevator, 5 elevators
3. 15 people **per** elevator, 8 elevators
4. 20 people **per** elevator, 4 elevators

How much money?

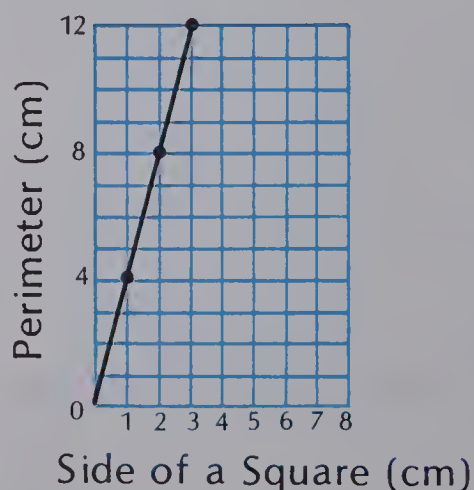
- | | |
|--|--|
| 5. 15 people, \$3.50 per person | 6. 15 people, \$1.50 per person |
| 7. 8 people, \$2.00 per person | 8. 6 people, \$1.75 per person |

How many objects?

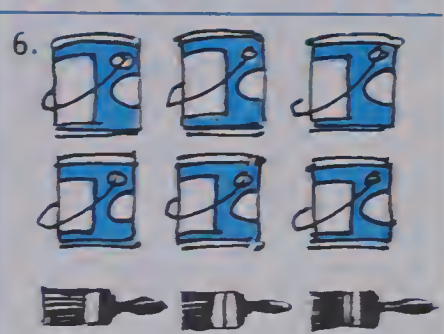
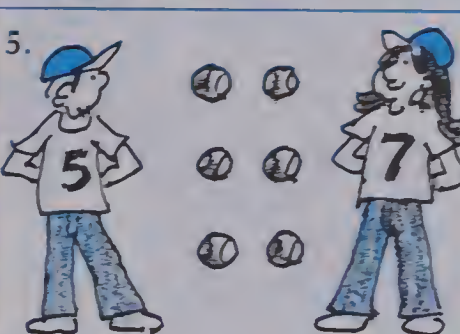
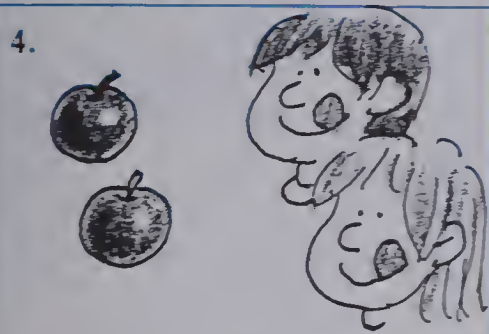
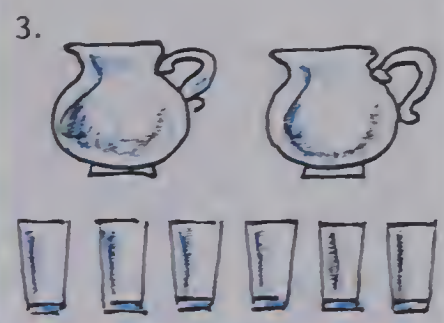
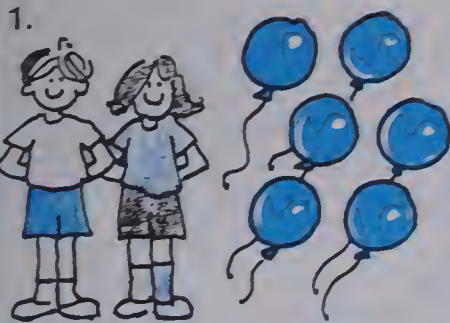
- | | |
|---------------------------------|---------------------------------|
| 9. 100 per box, 25 boxes | 10. 16 per box, 14 boxes |
| 11. 25 per box, 9 boxes | 12. 55 per box, 45 boxes |

Use the graph to answer the questions.

13. The length of a side of a square is 3 cm. What is the perimeter?
14. If the length of a side is doubled, what happens to the perimeter?
15. If the length of a side increases by 1 cm, by how much does the perimeter increase?



PRACTICE



1. How many balloons per child?
2. How many eggs per carton?
3. How many glasses per pitcher?
4. How many apples per child?
5. How many balls per child?
6. How many brushes per paint can?
7. Complete the table and then draw a graph.

Perimeter of a Triangle with 3 Equal Sides

Side in centimetres	1	2	3	4	5	6
Perimeter in centimetres	3					

In the school lunch room, there are 6 children per table.

8. How many children are there at 6 tables?
9. How many tables are needed for 48 children?

Fun with Sums

Each row of numerals follows a pattern.

Which numerals go in the blank squares?

1	4	5	9		23	
3	9	12	21		54	
2	5	7	12		31	

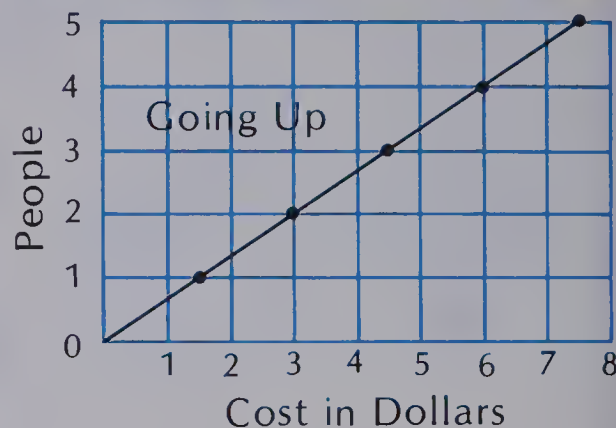
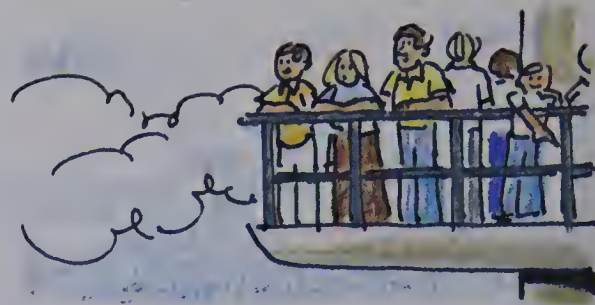
Price Rates

The charge for the ride to the observation deck of the Space Needle is \$1.50 per person.

People	1	2	3	4	5
Cost	\$1.50	\$3.00	\$4.50	\$6.00	\$7.50

$(2 \times \$1.50)$

$(3 \times \$1.50)$



EXERCISES

- Complete the table to show the cost of buffet lunches in the tower dining room. Draw a graph to show the information.

Number of people	1	2	3	4	5
Cost in dollars	\$4				

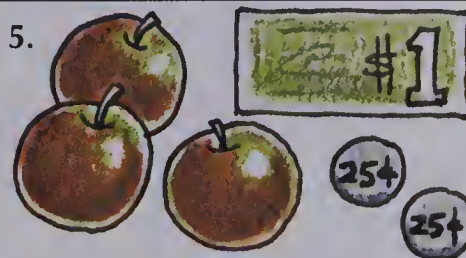
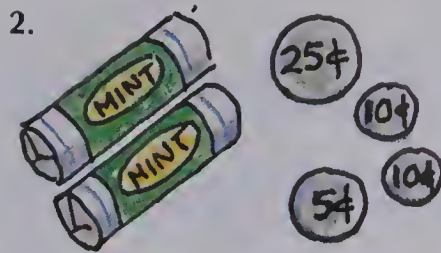
- Fill in the table to show the number of nickels. Draw a graph to show the relationship.

Number of nickels	20				
Amount	\$1	\$2	\$3	\$4	\$5

Solve.

- If 1 balloon costs 25¢, then 5 balloons cost ■.
- If 1 sack costs 7¢, then 10 sacks cost ■.
- If 1 card costs 35¢, then 3 cards cost ■.
- If 3 cans cost 65¢, then 9 cans cost ■.
- If 2 cartons cost \$1.19, then 8 cartons cost ■.
- If 10 boxes cost 58¢, then 100 boxes cost ■.
- If 1 bag costs \$5, then 5 bags cost ■.
- If 5 m cost \$15, then 15 m cost ■.
- If 16 pieces cost 25¢, then 48 pieces cost ■.

PRACTICE



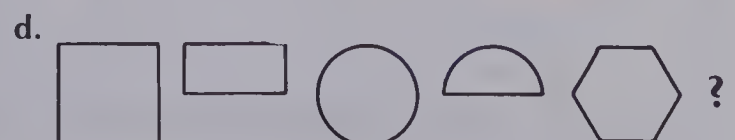
1. What is the price per ticket?
2. What is the price per pack?
3. What is the price per can?
4. What is the price per licorice stick?
5. What is the price per apple?
6. What is the price per flower?

Solve.

7. Lunch in the school cafeteria costs 85¢. Draw a graph to show the cost of lunch for 1 to 5 people.
8. John earned \$32.50 each week delivering newspapers. How much does he earn in 4 weeks?
9. Marylynne was paid \$1.25 per hour to baby-sit. How much did she earn in 7 h?

Fancy Figures

Copy the pattern and draw the next figure.

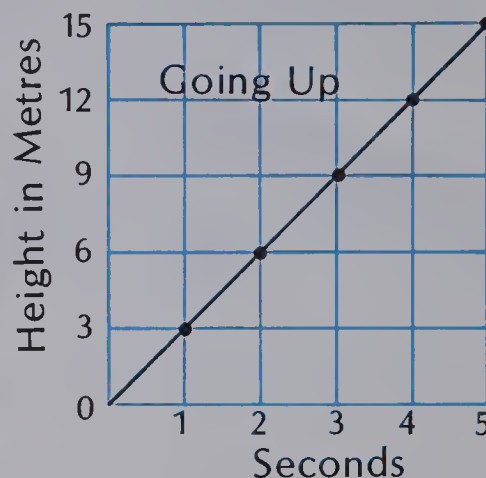
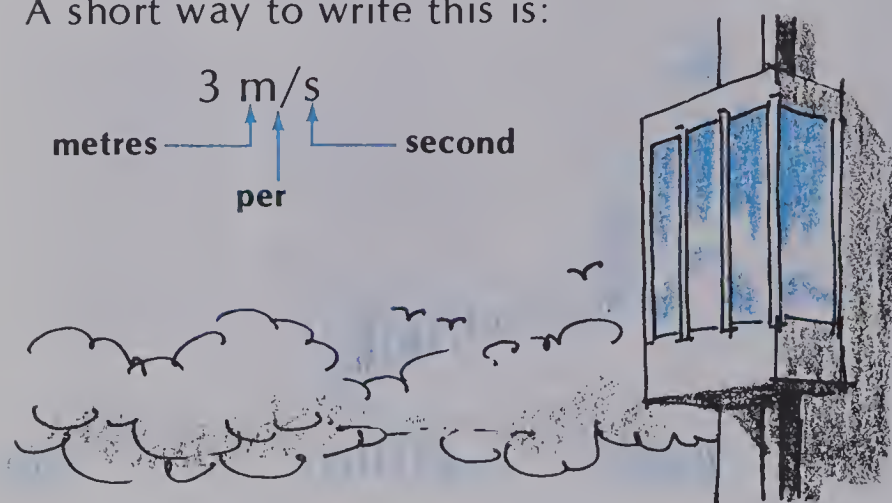


Speed

The Calgary Tower elevator moves at a speed of **three metres per second**.

Time (seconds)	1	2	3	4	5
Height (metres)	3	6	9	12	15

A short way to write this is:



EXERCISES

Use symbols to write these speeds.

- two centimetres per second
- ten kilometres per hour
- twenty metres per minute

Symbols	
seconds	s
minutes	min
hours	h

- A car travels 80 km/h.

Car Travel

Number of hours	1	2	3	4	5
Distance in kilometres	80				

Complete the table and draw a graph to show the results.

Use the table below to answer questions 5 to 7.

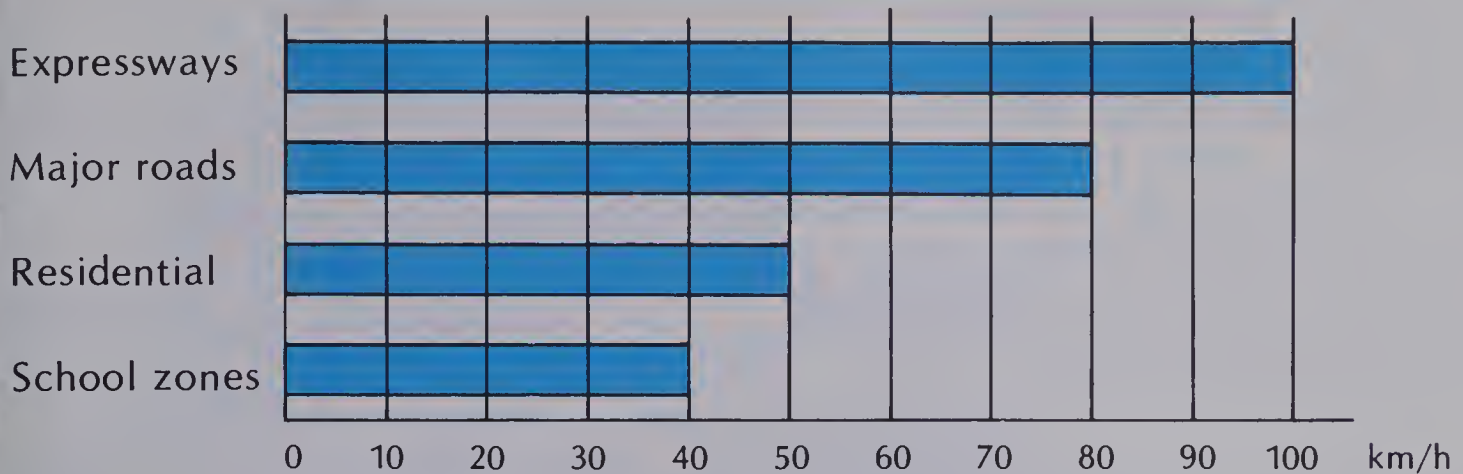
An Ostrich Running

Time in minutes	10	20	50	60	90
Distance in kilometres	16	32	80	96	144

- At this speed, how far could an ostrich run in 40 min?
- What is the speed of the ostrich in kilometres per hour?
- The ostrich ran 32 km at this speed.
How long did the ostrich take to run this distance?

PRACTICE

City Speed Limits



1. What is the speed limit in kilometres per hour in a school zone?
2. If a car could travel in residential areas at maximum speed for 30 min, how far would it travel?
3. Make a table to show the total distance travelled on major roads at maximum speed during five hours.
4. In four hours, how much farther could a car travel on an expressway than on a residential road?

Solve.

5. An elevator rises 180 m in 60 s. At that speed, how long would it take the elevator to rise 60 m?

Logical Thoughts

Accept the first statement as being true.

Which of the next two statements must also be true?

1. Radio towers are over 200 m tall.
 - a. This tower is over 200 m tall, so it must be a radio tower.
 - b. This is a radio tower, so it must be over 200 m tall.
2. All the boys in the class have blue eyes.
 - a. John is in the class, so he has blue eyes.
 - b. Raymond has blue eyes, so he is a member of the class.

Percent

100 people visited the tower.
23 of the visitors were children.
What **percent** of the visitors were children?

$\frac{23}{100}$ of the visitors were children.

0.23 of the visitors were children.

23% of the visitors were children.

Percent means “per hundred”.
The symbol for percent is %.



EXERCISES

Write each fraction as a percent.

- | | | | | |
|---------------------|---------------------|---------------------|----------------------|-----------------------|
| 1. $\frac{16}{100}$ | 2. $\frac{72}{100}$ | 3. $\frac{39}{100}$ | 4. $\frac{64}{100}$ | 5. $\frac{25}{100}$ |
| 6. $\frac{45}{100}$ | 7. $\frac{89}{100}$ | 8. $\frac{91}{100}$ | 9. $\frac{113}{100}$ | 10. $\frac{135}{100}$ |

Write each decimal as a percent.

- | | | | | |
|----------|----------|----------|----------|----------|
| 11. 0.16 | 12. 0.91 | 13. 0.04 | 14. 0.50 | 15. 0.43 |
| 16. 0.38 | 17. 0.02 | 18. 0.70 | 19. 1.15 | 20. 1.79 |

Write each percent as a fraction with a denominator of 100.

- | | | | | |
|---------|---------|---------|---------|---------|
| 21. 52% | 22. 33% | 23. 94% | 24. 7% | 25. 48% |
| 26. 75% | 27. 26% | 28. 19% | 29. 69% | 30. 81% |

Write each percent as a decimal.

- | | | | | |
|---------|---------|---------|----------|----------|
| 31. 1% | 32. 2% | 33. 5% | 34. 8% | 35. 10% |
| 36. 20% | 37. 50% | 38. 90% | 39. 100% | 40. 200% |
| 41. 21% | 42. 52% | 43. 95% | 44. 108% | 45. 210% |

PRACTICE

1. Copy and complete the table.

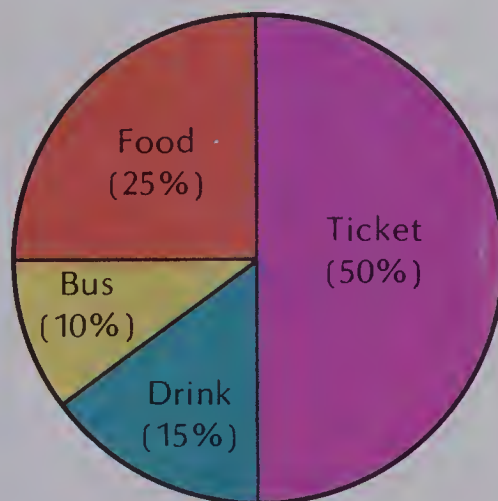
	Fraction with Denominator of 100	Decimal	Percent
a.			50%
b.	$\frac{30}{100}$		
c.			19%
d.		0.25	
e.			190%
f.		1.50	
g.	$\frac{250}{100}$		
h.		0.37	
i.			64%
j.	$\frac{7}{100}$		

Solve.

- Rob scored 94 out of 100 questions correct on an arithmetic test. What percent of the questions did Rob answer correctly?
- In a group of 100 students, 73 have visited the observation deck of a tower. What percent of the students have been on the deck of a tower?

Movie Expenses

- What was the major cost of attending the movie?
- On what was the least amount of money spent?
- What two expenses together cost the same as one other expense?
- What percent of the total was spent on food and drink?
- Did food and drink cost more than the movie ticket?
- What is the total percent shown?



Percent of a Number

The C.N. Tower in Toronto is about 553 m tall.

Elevators go up about 65% of the height.
What height can you reach on an elevator?

Change the percent
to a decimal.

$$65\% = 0.65$$

Multiply.

$$\begin{array}{r} 553 \\ \times 0.65 \\ \hline 359.45 \end{array}$$

Round.

360

The elevator reaches about 360 m.



EXERCISES

Write each percent as a decimal.






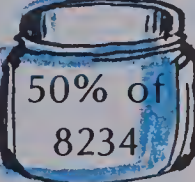
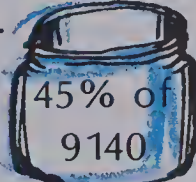
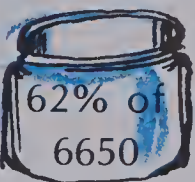
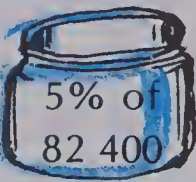
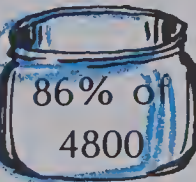
- | | | | | |
|---------|---------|---------|--------|---------|
| 1. 14% | 2. 67% | 3. 3% | 4. 21% | 5. 96% |
| 6. 33% | 7. 5% | 8. 84% | 9. 55% | 10. 16% |
| 11. 40% | 12. 75% | 13. 39% | 14. 1% | 15. 50% |

Compute.

- | | | |
|------------------|------------------|------------------|
| 16. 10% of 90 | 17. 10% of 48 | 18. 10% of 39 |
| 19. 100% of 80 | 20. 100% of 17 | 21. 100% of 100 |
| 22. 1% of 300 | 23. 1% of 360 | 24. 1% of 1000 |
| 25. 25% of 40 | 26. 25% of 60 | 27. 25% of 20 |
| 28. 81% of 85 | 29. 81% of 59 | 30. 81% of 38 |
| 31. 109% of 31 | 32. 50% of \$70 | 33. 25% of \$52 |
| 34. 75% of \$80 | 35. 50% of \$45 | 36. 33% of \$66 |
| 37. 20% of \$92 | 38. 3% of \$3 | 39. 5% of \$65 |
| 40. 60% of \$342 | 41. 54% of \$775 | 42. 90% of \$845 |

PRACTICE

Match the lids and jars.

a.		b.		c.		d.		e.	
1.		2.		3.		4.		5.	

Compute.

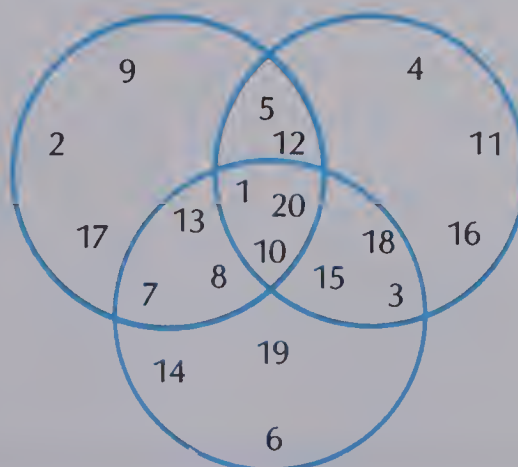
- | | | |
|-----------------|-----------------|-----------------------|
| 6. 10% of \$30 | 7. 65% of 90 cm | 8. 5% of 60 questions |
| 9. 91% of 200 g | 10. 33% of \$16 | 11. 150% of 70 |

Solve.

12. 950 people visited an observation tower.
- a. 42% of the visitors were children.
How many children visited the tower?
 - b. 30% of the visitors were men.
How many of the visitors were not men?
13. There were 80 questions on an arithmetic test.
- a. Gwen received a mark of 95%.
How many questions did she answer correctly?
 - b. Raymond answered 72 of the questions correctly.
What percent of the questions did Raymond get wrong?

Intersecting Circles

Write the numerals that are in exactly two of the circles.



Two-Step Problems



During a winter sale, Jodi bought a sweater for \$36. She paid a sales tax of 7% on her purchase. How much did she pay altogether?



- a. **Identify:** cost = \$36; sales tax = 7%.
Decide: "7%" tells us to choose \times .
Evaluate: $0.07 \times 36 = 2.52$.
Answer: The sales tax is \$2.52.
- b. **Identify:** sales tax = \$2.52; cost = \$36.
Decide: "pay altogether" tells us to choose $+$.
Evaluate: $\$36.00 + \$2.52 = \$38.52$.
Answer: She paid \$38.52 altogether.

EXERCISES

Copy and complete.

1. A store repacks a carton of 120 apples in bags of 6. Each bag sells for \$1.65. How much does the store receive for the carton of apples?
Step 1: $120 \div 6 = 20$
2. A service station buys gas for 39.4¢/L and sells it for 42.0¢/L. How much profit is made on a sale of 120 L?
Step 1: $42.0 - 39.4 = 2.6$
3. Vic bought a used car for \$3860 and spent \$795 to repair it. Then he sold it for \$3525. How much did he lose on the car?
Step 1: $3860 + 795 = 4655$
4. Three partners bought a house for \$88 300 and later sold it for \$95 200. How much profit did each partner make?
Step 1: $95\ 200 - 88\ 300 = 6900$
5. A store bought 43 L of paint for \$4.63/L and sold it for \$8.25/L. What was the total profit?
6. There are 4 engines on a rocket. Each engine burns 75.4 L/min. How much fuel is burned in 3 min?

PRACTICE

Solve.

1. Mr. and Mrs. Swartz listed their home with a real estate broker for \$78 950. In order to sell it, they reduced the price by \$3950. How much money did they receive after paying the broker's fee of \$4500?
2. A corner store bought 5 cartons of 24 cans of apple juice and then sold all the drinks individually for 42¢ each. How much money did the store owner receive?
3. If a deep-well pump can draw 50 L/min, how many hours will it take to fill a 27 000 L tank?
4. Ralph's parents just bought a \$895 television set for their family room. They paid a sales tax of 4%. How much did the set cost altogether?

REVIEW

A46

1. 6 cars
5 people per car
How many people?

2. 23 buses
1035 people
How many people per bus?

A47

3. 3 cans cost 75¢.
How much for 12 cans?

4. 6 apples cost \$1.80.
How much per apple?

A48

5. A car goes 180 km in 3 h.
What is the speed in kilometres per hour?

N21

Write the percent.

6. $\frac{12}{100}$

7. $\frac{75}{100}$

8. 0.02

9. 0.35

10. 0.50

A49

Compute.

11. 10% of 80

12. 65% of 50

13. 25% of 128

TEST

UNIT 11

Write as a decimal.

1. $\frac{315}{1000}$ 2. $\frac{29}{1000}$ 3. $\frac{680}{1000}$ 4. $\frac{4}{1000}$ 5. $\frac{2143}{1000}$

Round each decimal to the nearest tenth and hundredth.

6. 0.458 7. 3.216 8. 70.809 9. 584.992 10. 0.167

Write as a decimal.

11. 3 tenths + 9 hundredths + 14 thousandths
12. 1 ten + 12 ones + 11 tenths + 20 hundredths
13. 5 ones + 3 tenths + 7 hundredths + 45 thousandths

Compute.

14.
$$\begin{array}{r} 18.462 \\ + 9.507 \\ \hline \end{array}$$
 15.
$$\begin{array}{r} 33.621 \\ + 78.479 \\ \hline \end{array}$$
 16.
$$\begin{array}{r} 5.613 \\ - 3.274 \\ \hline \end{array}$$
 17.
$$\begin{array}{r} 24.837 \\ - 11.619 \\ \hline \end{array}$$
18.
$$\begin{array}{r} 0.315 \\ \times 6 \\ \hline \end{array}$$
 19.
$$\begin{array}{r} 0.087 \\ \times 4 \\ \hline \end{array}$$
 20.
$$\begin{array}{r} 0.381 \\ \times 10 \\ \hline \end{array}$$
 21.
$$\begin{array}{r} 0.205 \\ \times 23 \\ \hline \end{array}$$

Solve.

22. 6 apples
2 per child
How many children?
23. 24¢
4 children
How much per child?
24. A car is travelling at 50 km/h.
How far will it go in 4 h?

Write as a percent.

25. 0.14 26. 0.86 27. 0.03 28. 1.00 29. 1.27

Write each percent as a fraction with a denominator of 100.

30. 36% 31. 5% 32. 98% 33. 17% 34. 100%

Solve.

35. 20% of 60 = ■ 36. 50% of 37 = ■ 37. 40% of 50 = ■

Name each figure.

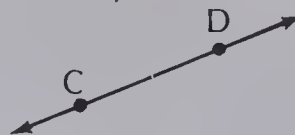
1.



2.



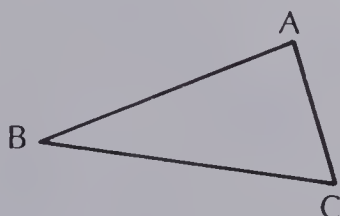
3.



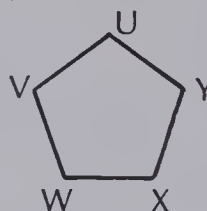
4.



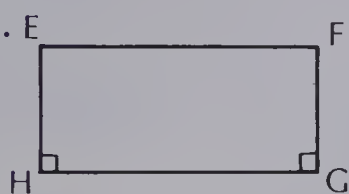
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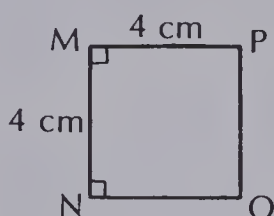
6.



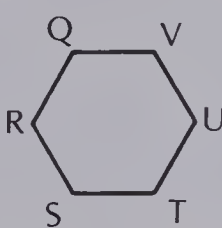
7.



8.



9.



Name the motion (slide, flip, or turn).

10.



11.



12.



13. What figure has a line of symmetry?

a.



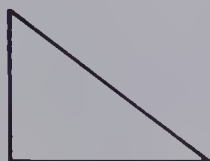
b.



c.



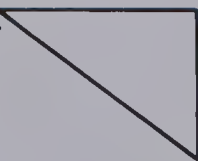
14. Which triangle is congruent to the first one?



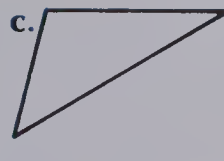
a.



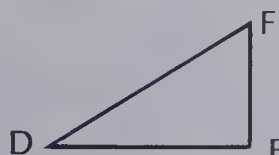
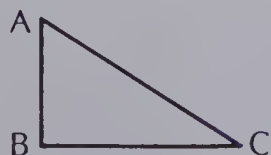
b.



c.



15. Name all the matching points and sides in these congruent triangles.



UNIT 12

APPLICATIONS



Measures

Which train will each rider board?



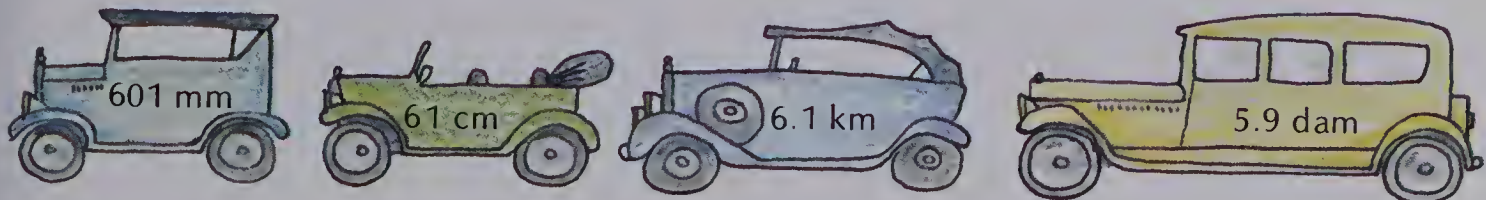
How many metres?

7.

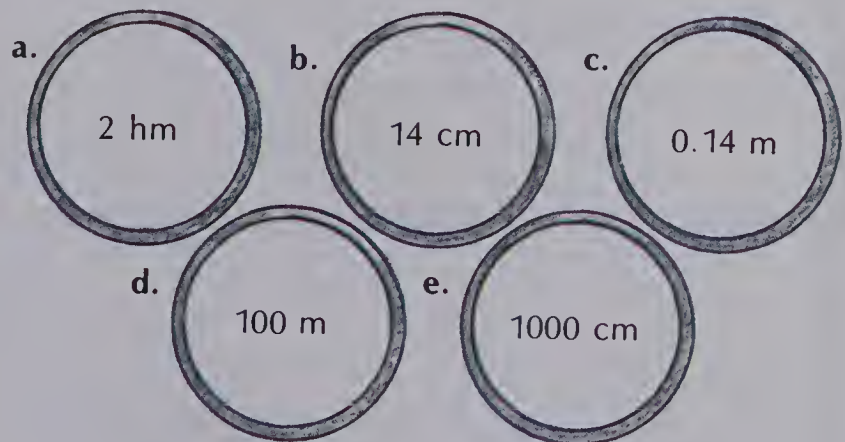
8.

9.

10.



Find the pairs of wheels. Match the letter and the number of wheels that represent equal lengths.



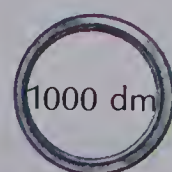
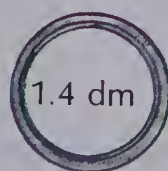
11.

12.

13.

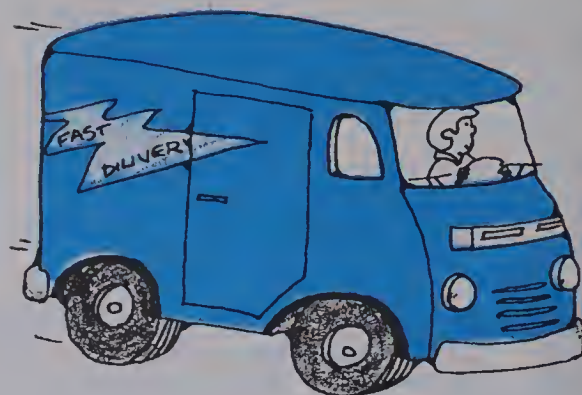
14.

15.



Averages

George has a delivery service. Last week, he made 22 deliveries on Monday, 27 on Tuesday, 24 on Wednesday, 30 on Thursday, and 20 on Friday. About how many deliveries did he make a day? (Round to the nearest whole number.)



Step 1.

Add.

$$\begin{array}{r} 22 \\ 27 \\ 24 \\ 30 \\ + 20 \\ \hline 123 \end{array}$$

doesn't divide evenly

Step 2.

Divide.

$$\begin{array}{r} 24 \\ 5 \overline{) 123} \\ \underline{-10} \\ 23 \\ \underline{-20} \\ 3 \end{array}$$

Continue dividing.

$$\begin{array}{r} 24.6 \\ 5 \overline{) 123.0} \\ \underline{-10} \\ 23 \\ \underline{-20} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

Round.

$$\boxed{25}$$

He made about 25 deliveries a day.
This is his **average**.

EXERCISES

Find the average.

1. $\begin{array}{r} 2 \text{ g} \\ 4 \text{ g} \\ 10 \text{ g} \\ + 8 \text{ g} \\ \hline 24 \text{ g} \end{array}$

$$24 \div \blacksquare = \blacksquare$$

The average mass is \blacksquare .

2. $\begin{array}{r} 4 \text{ years} \\ 7 \text{ years} \\ 9 \text{ years} \\ 3 \text{ years} \\ + 7 \text{ years} \\ \hline \end{array}$

$$\blacksquare \div 5 = \blacksquare$$

The average time is \blacksquare .

3. $\begin{array}{r} 67 \text{ kg} \\ 72 \text{ kg} \\ + 74 \text{ kg} \\ \hline \end{array}$

$$\blacksquare \div \blacksquare = \blacksquare$$

The average mass is \blacksquare .

Find the average. Round to the nearest whole number.

4. 11, 7, 8, 16

5. 8, 12, 15, 7, 9

6. 21, 23, 19, 22

7. 16, 14, 11, 10, 9, 21, 15, 18

PRACTICE

Find the average. Round to the nearest whole number.

1. 6, 11, 4
2. 62, 81, 74, 83
3. 2, 9, 4, 3, 8, 5, 4
4. 14, 27, 31, 20, 18
5. 16, 24, 11, 18, 19, 23
6. 79, 46, 40, 63, 71
7. 31, 52, 25, 44, 56, 29
8. 125, 133, 214, 162, 204
9. 8967, 8898
10. 10.1, 9.5, 8.3

Solve.

11. A truck hauled five loads of grain. The first load had a mass of 13 t. The others were 11 t, 13 t, 16 t, and 15 t. What was the average mass of the loads?
12. A bus driver worked 20 days in April, 21 days in May, 22 days in June, 25 days in July, and 25 days in August. What was the average number of days worked per month?
13. Grace is learning to be a pilot, she logged the following flight times: 2.5 h, 1.75 h, 4 h, and 2.75 h. What was her average flight time? (Round to the nearest tenth.)
14. Find the average mass of these compact cars, to the nearest hundredth: 1.750 t, 1.973 t, 1.694 t, 2.107 t?
15. Four subway cars carried an average of 100 passengers each. The first three cars carried 75, 85, and 125 passengers. How many passengers did the fourth car carry? (*Hint!* Guess and test.)

USING THE CALCULATOR

Use a calculator to find the average of each set of numbers.

Round to the nearest hundredth.

- a. 1073, 4180, 917
- b. 41.97, 27.32, 31.07, 4.3, 52.107
- c. 17, 28, 14, 10, 41, 22, 35
- d. 0.342, 0.648, 0.356
- e. 8, 2, 1, 4, 3, 8, 2, 3
- f. 13, 19, 21, 27

Adding and Subtracting Money

Clare wanted to visit her cousin. She had \$8.48. Her father gave her \$10.75 more. How much money did she have then?

$$\begin{array}{r} \$8.48 \\ + 10.75 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ \$8.48 \\ + 10.75 \\ \hline \$19.23 \end{array}$$

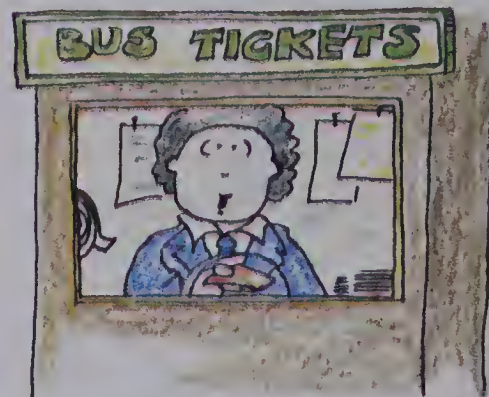
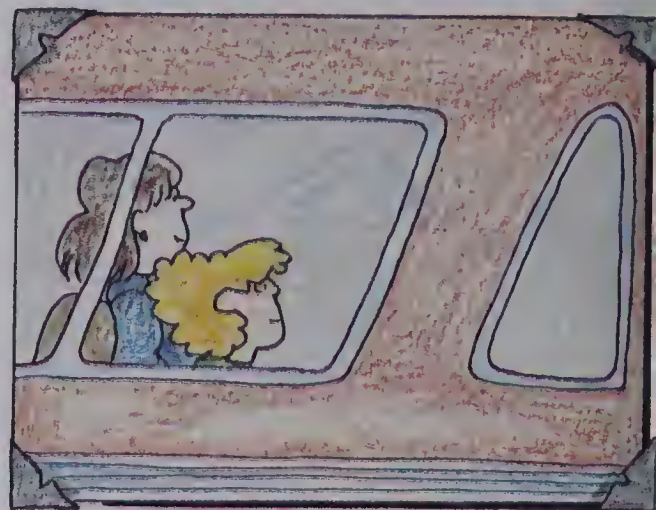
Clare had \$19.23.

The bus fare to her cousin's home was \$9.85. How much money did Clare have left?

$$\begin{array}{r} \$19.23 \\ - 9.85 \\ \hline \end{array}$$

$$\begin{array}{r} 11 \\ 8 \cancel{1}3 \\ \$19.\cancel{2}3 \\ - 9.85 \\ \hline \$9.38 \end{array}$$

Clare had \$9.38 left.



To add or subtract money, align the decimal points.

EXERCISES

Write the amount using \$.

1. three dollars and thirty-six cents
2. seventy dollars and seventy cents
3. eighty-one dollars and three cents
4. forty dollars and four cents
5. one hundred twenty-five dollars and ten cents

Add or subtract.

6. $\begin{array}{r} \$0.31 \\ + 0.08 \\ \hline \end{array}$

7. $\begin{array}{r} \$7.49 \\ - 2.15 \\ \hline \end{array}$

8. $\begin{array}{r} \$16.43 \\ + 0.94 \\ \hline \end{array}$

9. $\begin{array}{r} \$43.17 \\ - 8.32 \\ \hline \end{array}$

10. $\$0.42 + \1.17

11. $\$27.05 + \8.23

12. $\$5.73 - \2.21

13. $\$14.09 - \9.32

PRACTICE

Add or subtract.

1. $\begin{array}{r} \$0.34 \\ + 0.54 \\ \hline \end{array}$

2. $\begin{array}{r} \$1.74 \\ + 2.25 \\ \hline \end{array}$

3. $\begin{array}{r} \$24.35 \\ + 13.53 \\ \hline \end{array}$

4. $\begin{array}{r} \$243.50 \\ 76.95 \\ + 12.04 \\ \hline \end{array}$

5. $\$62.07 + \8.97

6. $\$391.20 + \8.08

7. $\begin{array}{r} \$0.78 \\ - 0.23 \\ \hline \end{array}$

8. $\begin{array}{r} \$2.74 \\ - 1.29 \\ \hline \end{array}$

9. $\begin{array}{r} \$14.62 \\ - 5.74 \\ \hline \end{array}$

10. $\begin{array}{r} \$48.00 \\ - 6.75 \\ \hline \end{array}$

11. $\$24.30 - \0.91

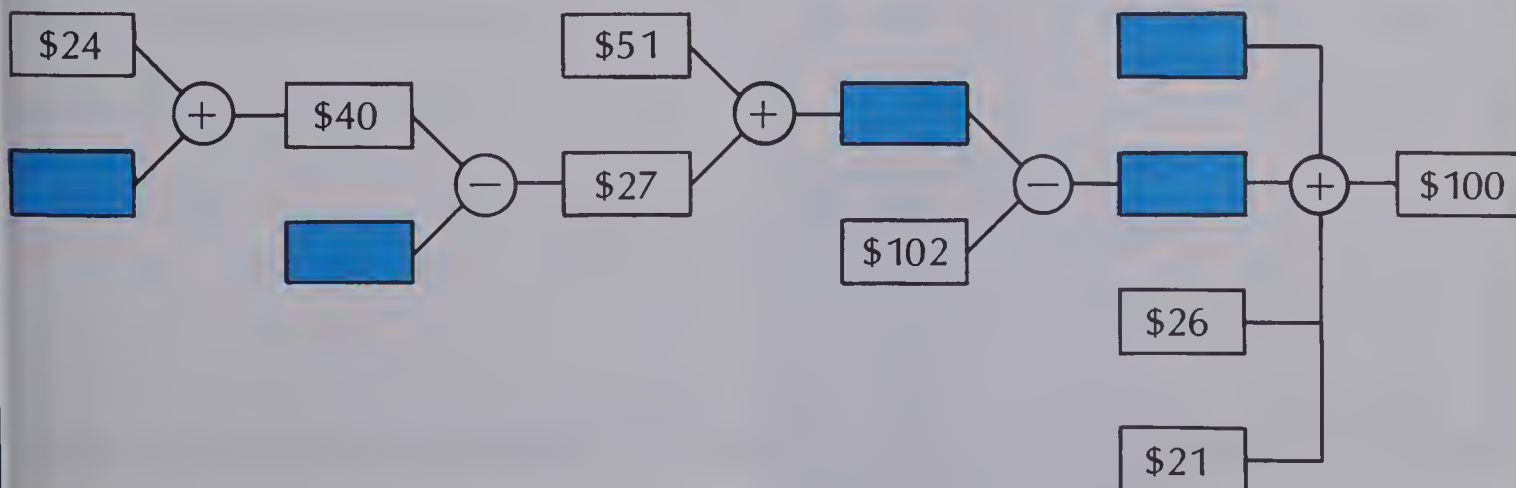
12. $\$79.50 - \3.64

Solve.

13. To ride the city bus, it costs Mr. Pulsen 75¢, Mrs. Pulsen 75¢, Sonja 25¢, Gerrard 25¢, and Paul 50¢. What does it cost for the whole family to ride the bus?
14. The regular air fare from Jane's home to Niagara Falls is \$278.50. The supersaver fare is \$198.99. How much is saved by taking the supersaver fare?
15. Luis' father had these travel expenses: taxi \$7.85, air fare \$187.32, taxi \$4.35, hotel \$75. What was his total travel expense?

Math Hopscotch

Find the missing numbers.



Making Change

Giles is travelling to Swift Current. He gave the clerk a \$20 bill. What change did the clerk give him?

Fares	
Brandon	\$17.45
Moose Jaw	\$3.80
Swift Current	\$13.55

Start from the cost of the ticket.
Count by coins and bills to \$20.00.

- \$13.55
 - 13.65
 - 13.75
 - 14.00
 - 15.00
 - 20.00
- What coin was added?
What coin was added?
What coin was added?
What bill was added?
What bill was added?

The clerk gave him 2 dimes, a quarter, a \$1 bill, and a \$5 bill.



EXERCISES

Count the change for this amount from \$1.00.

1. 98¢
2. 37¢
3. 19¢
4. 67¢

Count the change for this amount from \$5.00.

5. \$1.74
6. \$2.31
7. \$3.93
8. \$4.07

Count the change for this amount from \$10.00.

9. \$5.50
10. \$4.75
11. \$3.89
12. \$8.24

Count the change for this amount from \$20.00.

13. \$18.98
14. \$12.35
15. \$14.75
16. \$15.78
17. \$9.95
18. \$10.50
19. \$7.40
20. \$11.89
21. \$4.85
22. \$3.49
23. \$2.73
24. \$6.44

PRACTICE

Subtract.

$$\begin{array}{r} 1. \quad \$1.00 \\ - 0.25 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \$1.00 \\ - 0.28 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \$2.00 \\ - 0.43 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \$2.00 \\ - 1.27 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad \$5.00 \\ - 3.78 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \$10.00 \\ - 4.75 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \$20.00 \\ - 6.62 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad \$20.00 \\ - 10.40 \\ \hline \end{array}$$

Count the change for this amount from \$5.00.

9. \$1.50

10. \$0.30

11. \$2.70

12. \$3.60

Count the change for this amount from \$10.00.

13. \$4.00

14. \$3.38

15. \$1.95

16. \$7.45

Count the change for this amount from \$20.00.

17. \$14.98

18. \$10.75

19. \$8.90

20. \$12.82

21. \$3.50

22. \$2.99

23. \$1.49

24. \$5.14

Solve.

25. A taxi fare was \$6.35. The passenger gave the driver a \$20.00 bill. How much change was given?

26. A commuter train ticket from Oakville to Toronto costs \$7.59. How much change should a passenger get from \$10?

27. Peter had \$20.00 with him for a boat cruise. The ticket cost \$12.80. Refreshments cost \$3.85. Did he have enough change left to buy a \$4.00 souvenir?

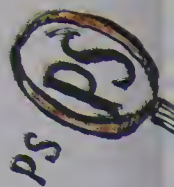
Squares

How many different squares can be drawn by joining these dots?

There are more than five!



Measurement in Problem Solving



A family drove 462.5 km on the first day of their holidays, 314.8 km on the second day, and 578.7 km on the third day. How far did they drive in three days?

462.5
314.8
<u>+ 578.7</u>



I'll round to the nearest hundred.
 $500 + 300 + 600 = 1400$.
 The answer should be about 1400 km.



I'll round to the nearest 50.

$$\begin{array}{r} 450 \\ 300 \\ + 600 \\ \hline 1350 \end{array}$$

The correct answer should be near 1400 or 1350 km.

EXERCISES

Choose the most likely answer.

- A rectangular field is 348.3 m long and 238.6 m wide. What is the perimeter of the field?
 a. 117.38 m b. 1173.8 m c. 3104.38 m d. 11.78 m
- The floor of a room is rectangular and is 11.2 m long and 7.7 m wide. How much carpet is needed to cover the floor?
 a. 862.4 m^2 b. 8624 m^2 c. 86.24 m^2 d. 8.624 m^2
- A board was cut into three pieces. The pieces were 0.9 m, 1.65 m, and 1.23 m long. How long was the original board?
 a. 37.8 m b. 0.0378 m c. 3.78 m d. 378 m
- The inside of a van is 2.3 m wide, 3.8 m long, and 2 m high. What is its volume?
 a. 17.48 m^3 b. 1.748 m^3 c. 8.1 m^3 d. 1748 m^3
- A piece of ribbon was 39.5 cm long. Cynthia cut off a length 21.75 cm long. How much was left?
 a. 17.75 cm b. 75 cm c. 7.75 cm d. 177.5 cm

PRACTICE

Choose the most likely answer.

1. Sharon's temperature was 37.5°C in the morning. By evening, it was 39.2°C . By how much did her temperature rise?
 a. 75.7°C b. 1.7°C c. 2.7°C d. 17°C
2. In a chemical experiment, the mass of a sample was measured three times. The results were 2.68 mg, 2.69 mg, and 2.64 mg. What was the average mass of the sample?
 a. 267 mg b. 8.01 mg c. 26.7 mg d. 2.67 mg
3. Mr. Solheim has a 1 L bottle of spot remover. How many 40 mL bottles can he fill with it?
 a. 960 b. 39 c. 25 d. 250
4. An arena has an ice surface that is 63 m long and 32 m wide. How many square metres of ice surface are there?
 a. 95 m^2 b. 31 m^2 c. 2016 m^2 d. 1.9 m^2

REVIEW

A50

Find the average. Round to the nearest whole number.

1. 10, 12, 9, 13, 16

2. 58, 40, 34, 62

M15

Add or subtract.

3. $\begin{array}{r} \$14.57 \\ + \quad 3.24 \\ \hline \end{array}$

4. $\begin{array}{r} \$10.04 \\ - \quad 3.58 \\ \hline \end{array}$

5. $\$112.30 + \6.25

M16

Count the change.

6. for $\$7.90$ from $\$20.00$

7. for $\$14.70$ from $\$20.00$

PS11

Solve.

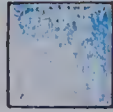
8. In three days, Mr. Capps drove 215 km, 486 km, and 425 km. Which total seems likely? 2126 km, 1126 km, 1026 km

Similar Figures

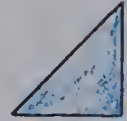
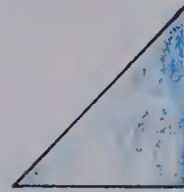
Geoffrey's little brother looks just like him.



Geoffrey and his brother are **similar**.



The squares have the same shape but are not the same size. They are similar.



The triangles have the same shape but are not the same size. They are similar.

Similar figures have the same shape.

EXERCISES

Are the two figures similar?

1.



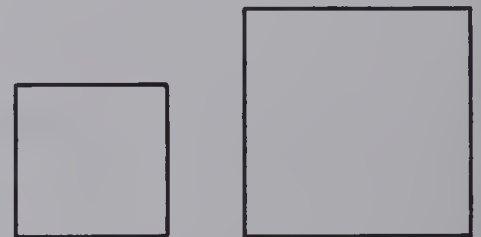
2.



3.



4.



5.



6.



7.

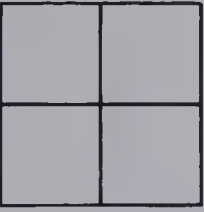



8.

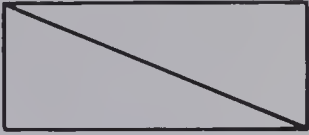


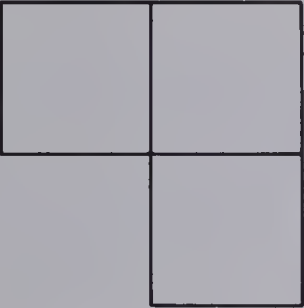
PRACTICE

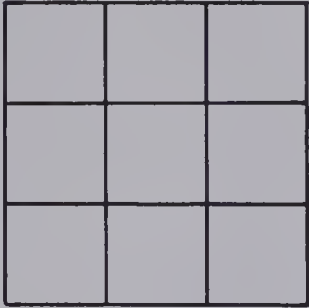
Match the number and the letter of the figures that are similar.

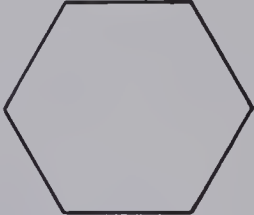
1. 

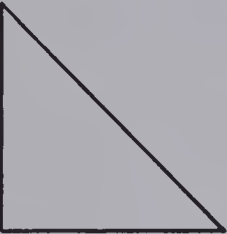
2. 

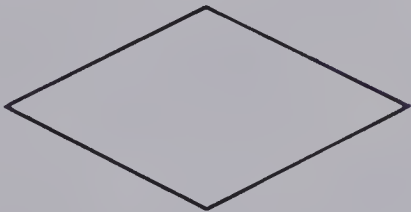
3. 

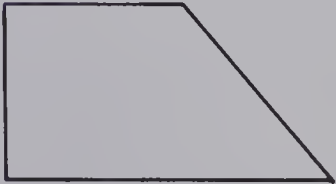
4. 


5. 

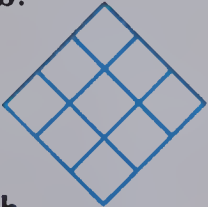
6. 


7. 


8. 


9. 


a. 


b. 


c. 


d. 

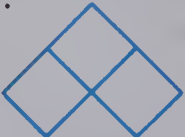
e. 


f. 

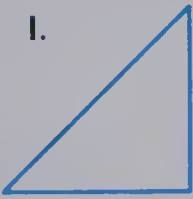
g. 

h. 

i. 

j. 

k. 

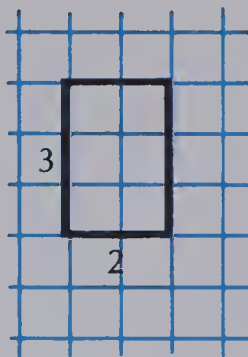
l. 

Alphabet Soup

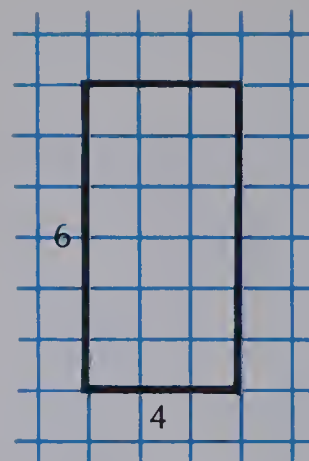
Print the alphabet in capital letters.
 Then print the alphabet in lower case letters.
 Which capital letters are similar to the lower case letters?

Aa Oo
 Mm Xx

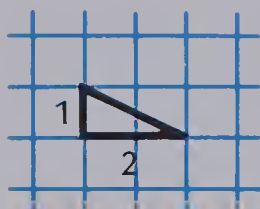
Enlargements



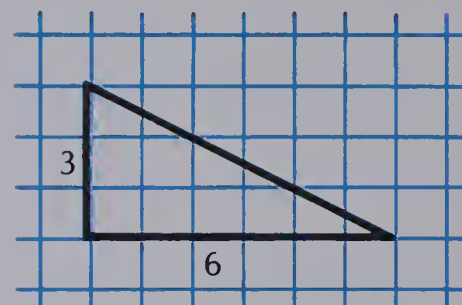
Multiply each dimension by 2.



This figure is similar.



Multiply each dimension by 3.

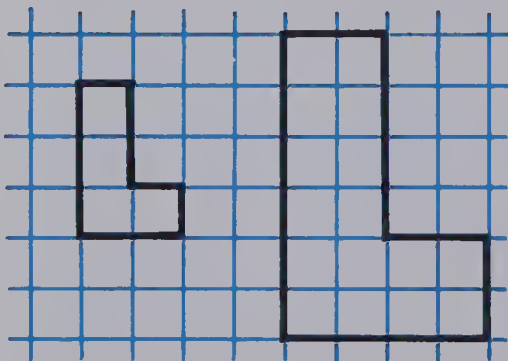


This figure is similar.

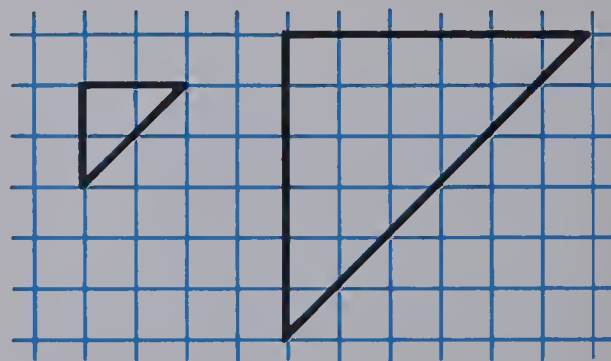
EXERCISES

Are the two figures similar?

1.

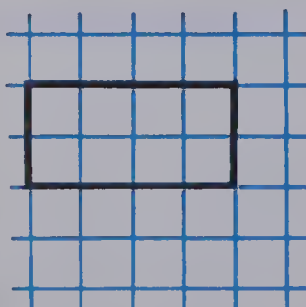


2.

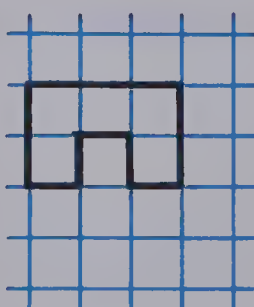


Make an enlargement of the figure on grid paper.

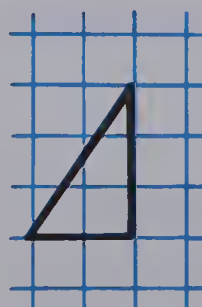
3.



4.



5.

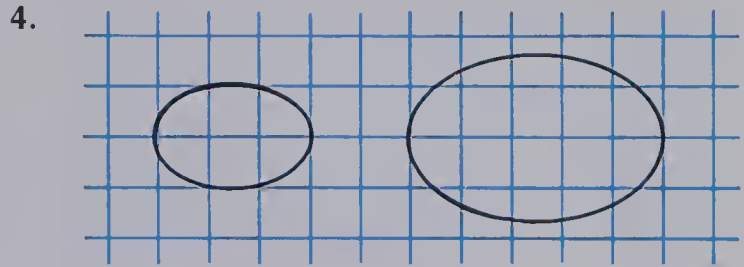
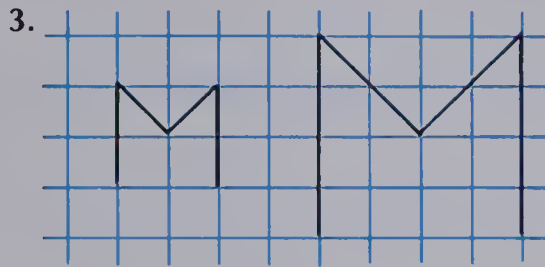
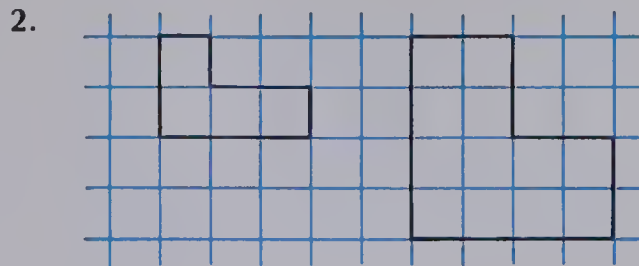
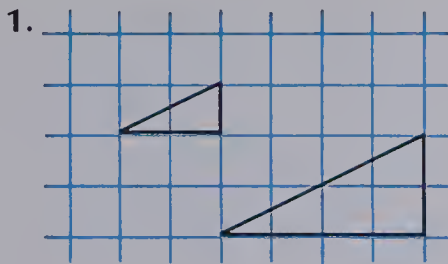


6.

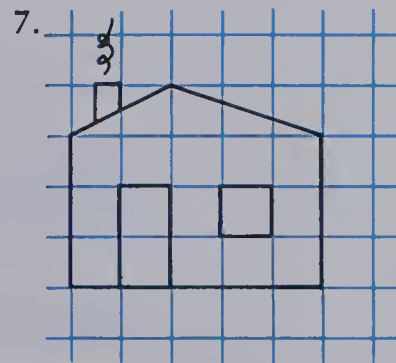
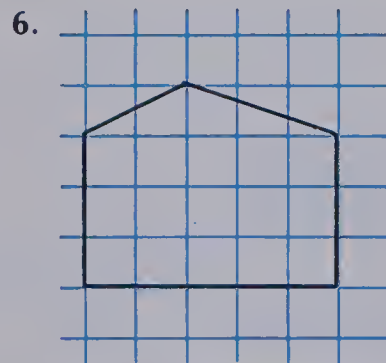
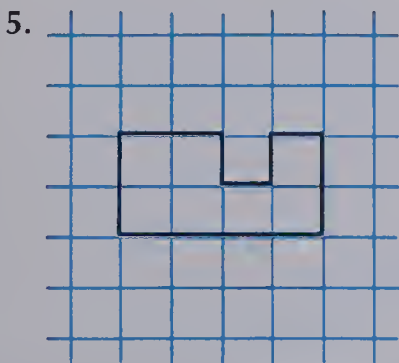


PRACTICE

Are the two figures similar?

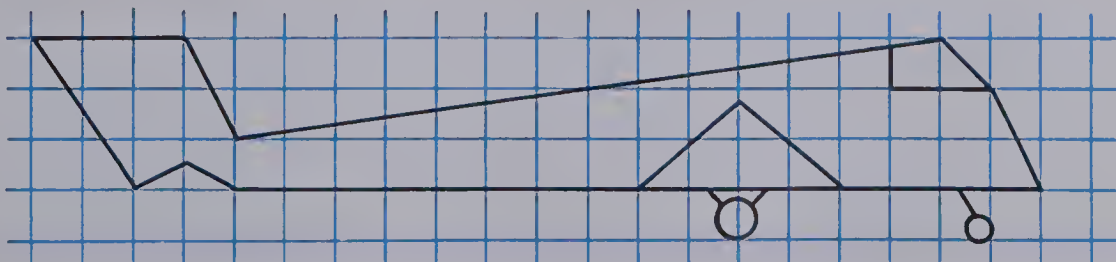
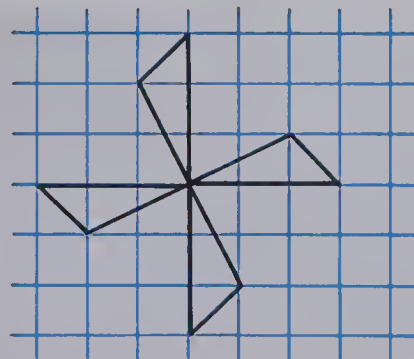


Make an enlargement of the figure on grid paper.

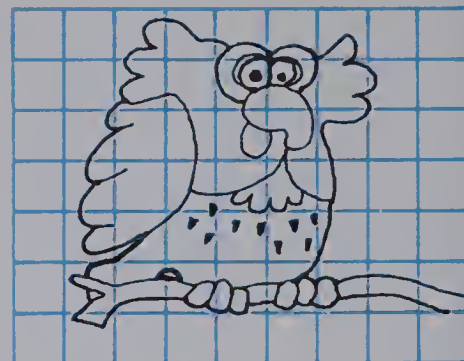
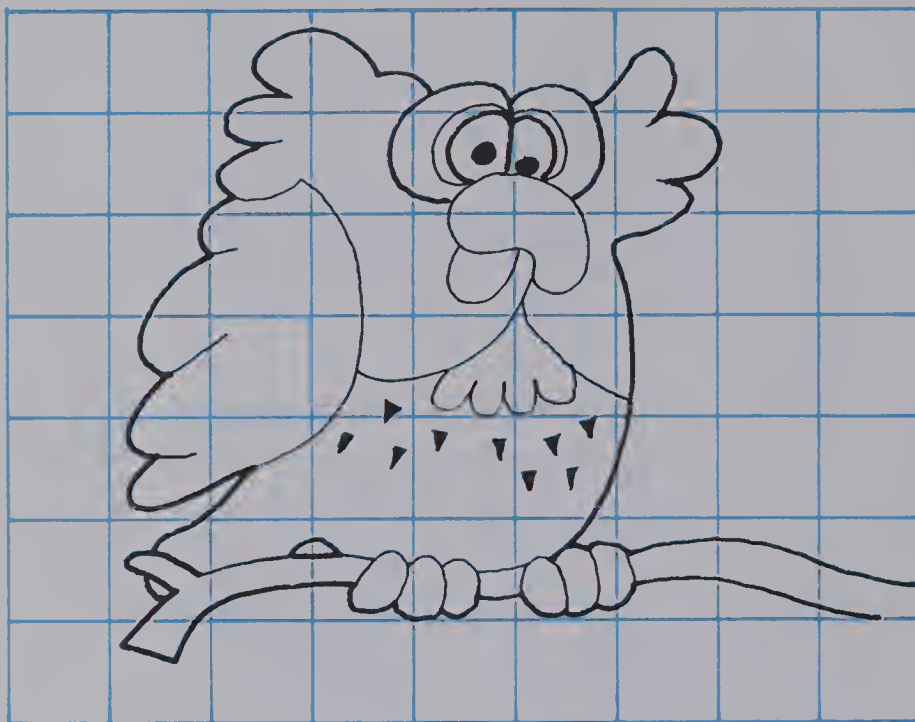


Bigger is Better

Make enlargements of these figures. Multiply the dimensions of the windmill by 3. Multiply the dimensions of the plane by 2.



Scale Drawings



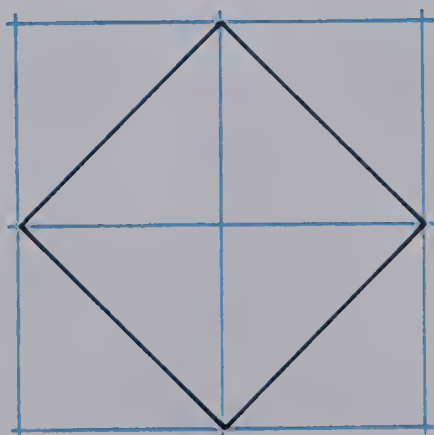
Scale: 0.5 cm = 1.0 cm

0.5 cm on the small drawing represents 1.0 cm on the large drawing.
1.0 cm on the small drawing represents 2.0 cm on the large drawing.
2.0 cm on the small drawing represents 4.0 cm on the large drawing.

EXERCISES

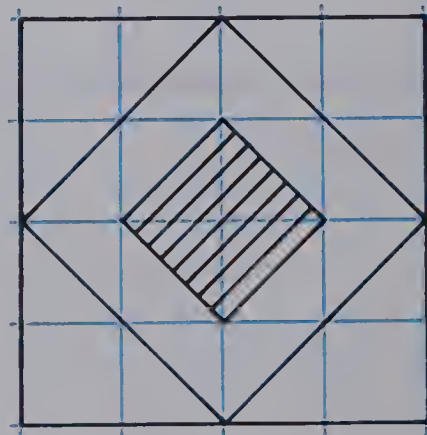
This figure is on a 2 cm grid.
Draw it on a 1 cm grid.

1.



This figure is on a 1 cm grid.
Draw it on a 0.5 cm grid.

2.

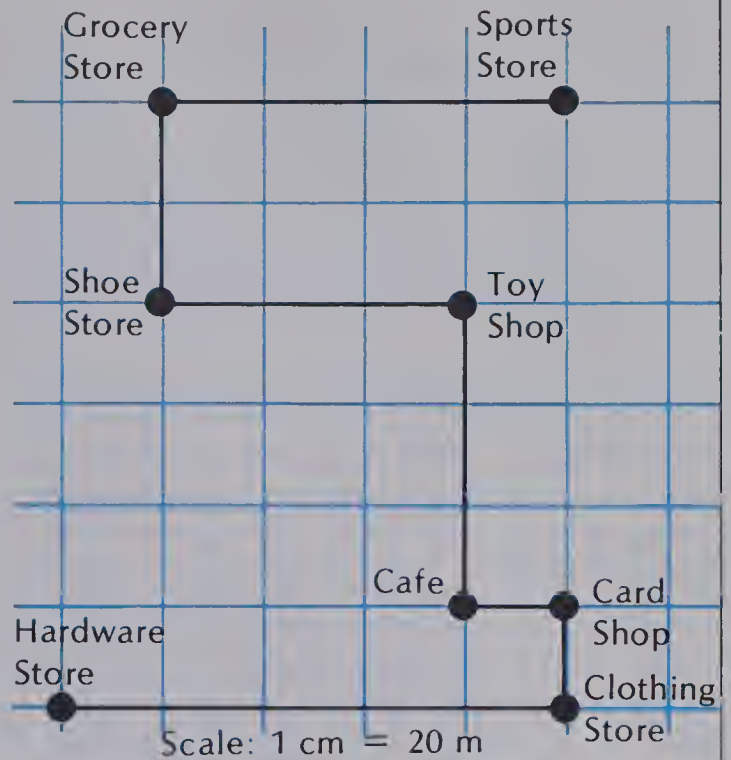


3. A map has a scale of 1 cm = 1 km. What does 3 cm on the map represent?
4. A scale drawing of a room has a scale of 1 cm = 2 m. What does 4 cm on the drawing represent?

PRACTICE

Follow the path shown on the map of the shopping centre. Use the scale to find the actual distance.

1. from the shoe store to the toy shop
2. from the sports store to the grocery store
3. from the grocery store to the toy shop
4. from the toy shop to the clothing store
5. from the shoe store to the hardware store



Complete.

	Scale	Length on Drawing	Real Length
6.	1 cm = 2 m	3 cm	
7.	1 cm = 3 m	2 cm	
8.	1 cm = 5 m		10 m
9.	1 cm = 4 m	4 cm	

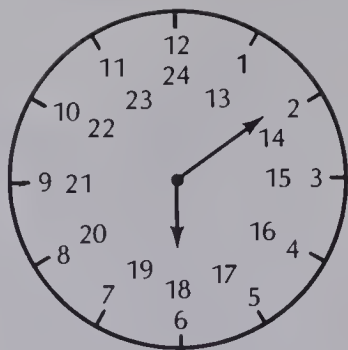
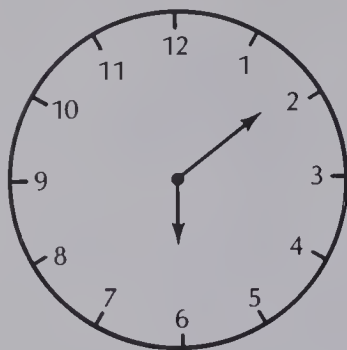
Cape Breton Island

Sometimes the scale on a map is given by a line divided into sections. Use the line to find the distance between these points.

- a. Sydney and Glace Bay
- b. Port Hood and Louisbourg
- c. Cape North and Petit-de-Grat
- d. Port Hawkesbury and Louisdale
- e. Inverness and North Sydney



Timetables



Bus Schedule

Lv. Calgary	Arr. Regina
06:00	14:00 — Daily ex. Sat. & Sun.
07:30	15:30 — Daily ex. Sat. & Sun.
09:25	19:25 — Daily
11:45	20:45 — Daily ex. Sat. & Sun.
13:00	21:00 — Daily
15:45	24:00 — Sat. only
17:00	01:00 — Daily ex. Sat. & Sun.
19:50	02:50 — Daily ex. Sun.
21:40	05:40 — Sun. only

KEY

Lv.	—	Leave
Arr.	—	Arrive
Daily	—	Every day
ex.	—	except
&	—	and

EXERCISES

Use the bus schedule to answer the question.

- Which buses run on weekdays only?
- Which buses run on Saturday?
- Which buses run on Sunday?
- Which buses leave in the morning?
- Which buses leave on Saturday afternoon?
- How long does it take the 06:00 bus to travel from Calgary to Regina?
- Do all the buses take the same amount of time?
- What is the latest bus you can take to Regina before midnight?

Subtract.

$$\begin{array}{r} 9. \quad 8 \text{ h } 45 \text{ min} \\ - 2 \text{ h } 30 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 08:45 \\ - 02:30 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad \begin{array}{r} 14 \text{ } 75 \\ 15:15 \\ - 03:30 \\ \hline \end{array} \end{array}$$

$$\begin{array}{r} 12. \quad 09:05 \\ - 01:50 \\ \hline \end{array}$$

PRACTICE

Use the bus schedule on page 280 to answer the question.

1. What time does the last bus in the morning leave for Regina?
2. What time does the 17:00 bus arrive in Regina?
3. What time does the first bus in the afternoon leave Calgary?

Subtract.

$$\begin{array}{r} 4. \quad 19:00 \\ - 07:00 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 12:00 \\ - 04:30 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 21:00 \\ - 08:00 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 09:50 \\ - 03:20 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 09:45 \\ - 02:28 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 12:35 \\ - 01:17 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 14:45 \\ - 03:55 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 21:30 \\ - 09:55 \\ \hline \end{array}$$

Add 5 h 30 min to each time.

$$12. \quad 03:00$$

$$13. \quad 06:45$$

$$14. \quad 10:30$$

$$15. \quad 01:48$$

Solve.

16. Sam got on the bus at 08:25. He arrived at his destination 2 h 20 min later. What time was it?
17. Zena finished her homework at 20:15. It had taken her 35 min. What time did she start?

Pedal Puzzle



Ellen and Marta live 50 km apart. They decided to ride their bicycles to meet each other. Ellen pedalled 12 km/h and Marta 8 km/h. They both left home at noon. At what time did they meet? Use a diagram.

Time Zones

The map shows the **time zones** across Canada.

As you go from west to east (left to right), the time is one hour ahead in each zone. (Newfoundland Time is only a half-hour ahead of Atlantic Time.)



EXERCISES

Name the time zone.

- | | | |
|---------------|-------------|--------------|
| 1. Whitehorse | 2. Edmonton | 3. Montreal |
| 4. Vancouver | 5. Halifax | 6. Churchill |
| 7. St. John's | 8. Regina | 9. Ottawa |
| 10. Saskatoon | 11. Calgary | 12. Winnipeg |

Complete.

13. Mountain Time is ■ h ahead of Pacific Time.
14. Pacific Time is ■ h behind Eastern Time.

When it is 08:00 in Fredericton, what time is it in

15. St. John's? 16. Winnipeg? 17. Vancouver?

When it is 04:00 in Edmonton, what time is it in

18. Montreal? 19. Prince Rupert? 20. Regina?

PRACTICE

Name the time zone.

- | | | |
|------------------|------------------|----------------|
| 1. Prince Rupert | 2. Charlottetown | 3. Quebec City |
| 4. Yellowknife | 5. Fredericton | 6. Toronto |

Complete.

7. Newfoundland Time is ■ h ahead of Atlantic Time.
8. Central Time is ■ h behind Eastern Time.
9. Mountain Time is ■ h behind Eastern Time.

When it is 09:00 in Quebec City, what time is it in

- | | | |
|--------------|--------------|-------------|
| 10. Halifax? | 11. Calgary? | 12. Ottawa? |
|--------------|--------------|-------------|

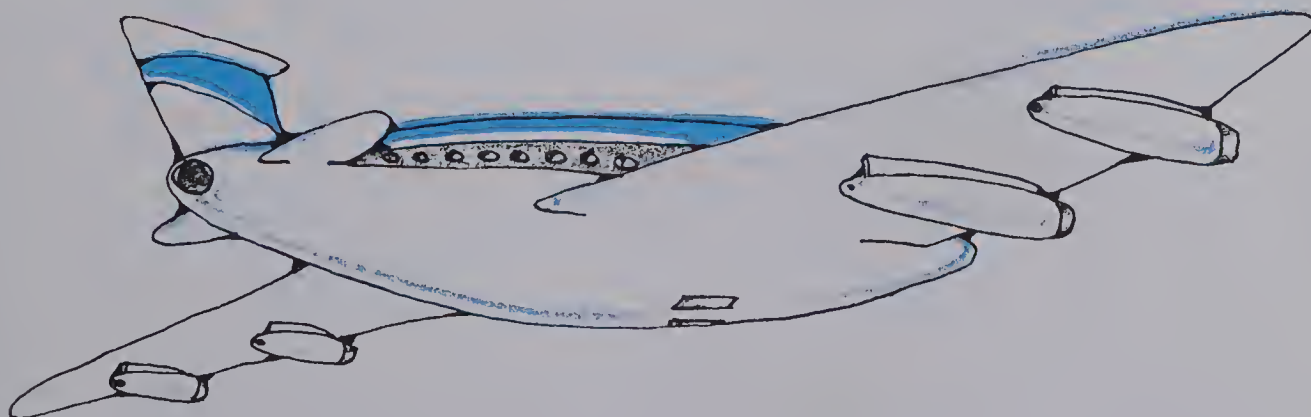
When it is 14:00 in Saskatoon, what time is it in

- | | | |
|--------------------|--------------|------------------|
| 13. Prince Rupert? | 14. Toronto? | 15. Fredericton? |
|--------------------|--------------|------------------|

Solve.

16. A hockey game is broadcast from Winnipeg at 20:00.
What time will it be for listeners in Montreal?
17. At noon in Ottawa on Canada Day, "Oh Canada" was broadcast.
What time did people in Vancouver hear it?

Against the Clock



A jet flies from Vancouver to Montreal in 5 h 15 min. If it leaves Vancouver at 04:40,

- a. what time is it in Montreal when it arrives?
b. what time is it in Vancouver when the plane arrives in Montreal?

Problem Solving Quiz



Choose the correct answer.

1. It is 17:00 in Vancouver. What time is it in Toronto?
a. 14:00 b. 21:00 c. 20:00 d. 16:00
2. Mr. Tucker shipped three cartons for \$38, \$45, and \$43.
What is the average cost per carton?
a. \$42 b. \$43 c. \$126 d. \$35.33
3. Rope that is 10 mm in diameter sells for 25¢/m.
How many metres can you buy for \$5.00?
a. 40 b. 20 c. 5 d. 50
4. Lila bought 24 m² of carpet at \$32.95/m².
How much did the carpet cost?
a. \$56.95 b. \$187.70 c. \$6721.80 d. \$790.80
5. A train leaves at 13:25 and arrives in the next city 1 h 35 min later. What time does it arrive?
a. 14:00 b. 15:00 c. 12:10 d. 14:50
6. Avtar works 35 h a week and earns \$280.
What is his hourly wage?
a. \$5 b. \$7 c. \$8 d. \$9
7. Marcia has to practise the piano for 45 min.
She wants to be finished by 05:15. What time should she start?
a. 03:30 b. 03:45 c. 04:15 d. 04:30
8. In 1976, the Men's Slalom was won with a time of 2 min 03.29 s.
In 1980, it was won with a time of 1 min 44.26 s. How much better was the 1980 time?
a. 19.03 s b. 47.55 s c. 59.03 s d. 40.97 s

PRACTICE

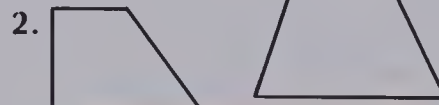
Solve.

1. Chris studied 40 min one night, 1 h 10 min the next night, and 35 min the next night. On average, how long did he study a night?
2. A car dealer bought a car for \$4745 and sold it for \$5000. How much money did she make?
3. A bus leaves at 03:50 and arrives at 05:15. How long does the trip take?
4. Mina bought a sofa and chair set for \$1249.95, end tables for \$369.50, and a lamp for \$69.90. What was the total cost of these items?

REVIEW

Are the two figures similar?

G10



G11



Solve.

G12

5. If a scale is 1 cm = 10 km, what does 4 cm represent?
6. If a scale is 1 cm = 5 m, what does 5 cm represent?

Add or subtract.

M17

7.
$$\begin{array}{r} 7 \text{ h } 15 \text{ min} \\ - 2 \text{ h } 48 \text{ min} \\ \hline \end{array}$$

8.
$$\begin{array}{r} 10:30 \\ - 02:25 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 6 \text{ h } 20 \text{ min} \\ + 3 \text{ h } 55 \text{ min} \\ \hline \end{array}$$

Solve.

M18

10. When it is 10:00 in Ottawa, what time is it in Edmonton?
11. When it is 08:30 in Charlottetown, what time is it in St. John's?

TEST

UNIT 12

Find the average. Round to the nearest whole number.

1. 44, 37, 33, 36, 45

2. 163, 145, 92, 101

Add or subtract.

3. \$1011.95 + \$6.89

4. \$2080.27 - \$192.83

Count the change.

5. for \$3.85 from \$10.00

6. for \$8.50 from \$20.00

Are the two figures similar?

7.



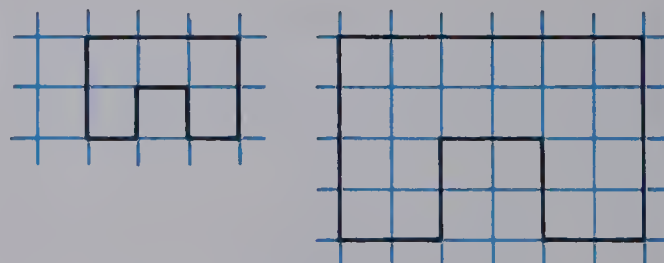
8.



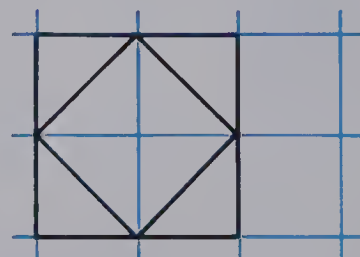
9.



10.



11. On 1 cm grid paper, make an enlargement of the figure, so that its dimensions are twice as large.



Add or subtract.

12. 13 h 15 min
+ 2 h 45 min

13. 10 h 30 min
- 5 h 10 min

14. 15:05
- 08:16

Solve.

15. The temperature rose from 15.2°C in the morning to 19.1°C in the afternoon. By how much did the temperature rise?

16. When it is 05:00 in Winnipeg, what time is it in Quebec City?

Add.

$$\begin{array}{r} 1. \quad 36.105 \\ + 7.905 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 27.480 \\ + 54.637 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 16.029 \\ + 0.984 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 401.637 \\ + 82.907 \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 5. \quad 38.426 \\ - 9.517 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 40.065 \\ - 23.189 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 923.164 \\ - 45.687 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 60 \\ - 37.328 \\ \hline \end{array}$$

Write as decimals.

9. thirteen thousandths 10. four thousandths
11. one hundred seventy-nine thousandths

Round to the nearest tenth.

12. 12.255 13. 0.841 14. 635.049 15. 43.970

Round to the nearest hundredth.

16. 4.475 17. 632.795 18. 15.413 19. 286.055

Write as a percent.

20. $\frac{9}{100}$ 21. $\frac{54}{100}$ 22. 0.72 23. 0.01 24. $\frac{100}{100}$

Write as a fraction with a denominator of 100.

25. 53% 26. 4% 27. 95% 28. 12% 29. 300%

Solve.

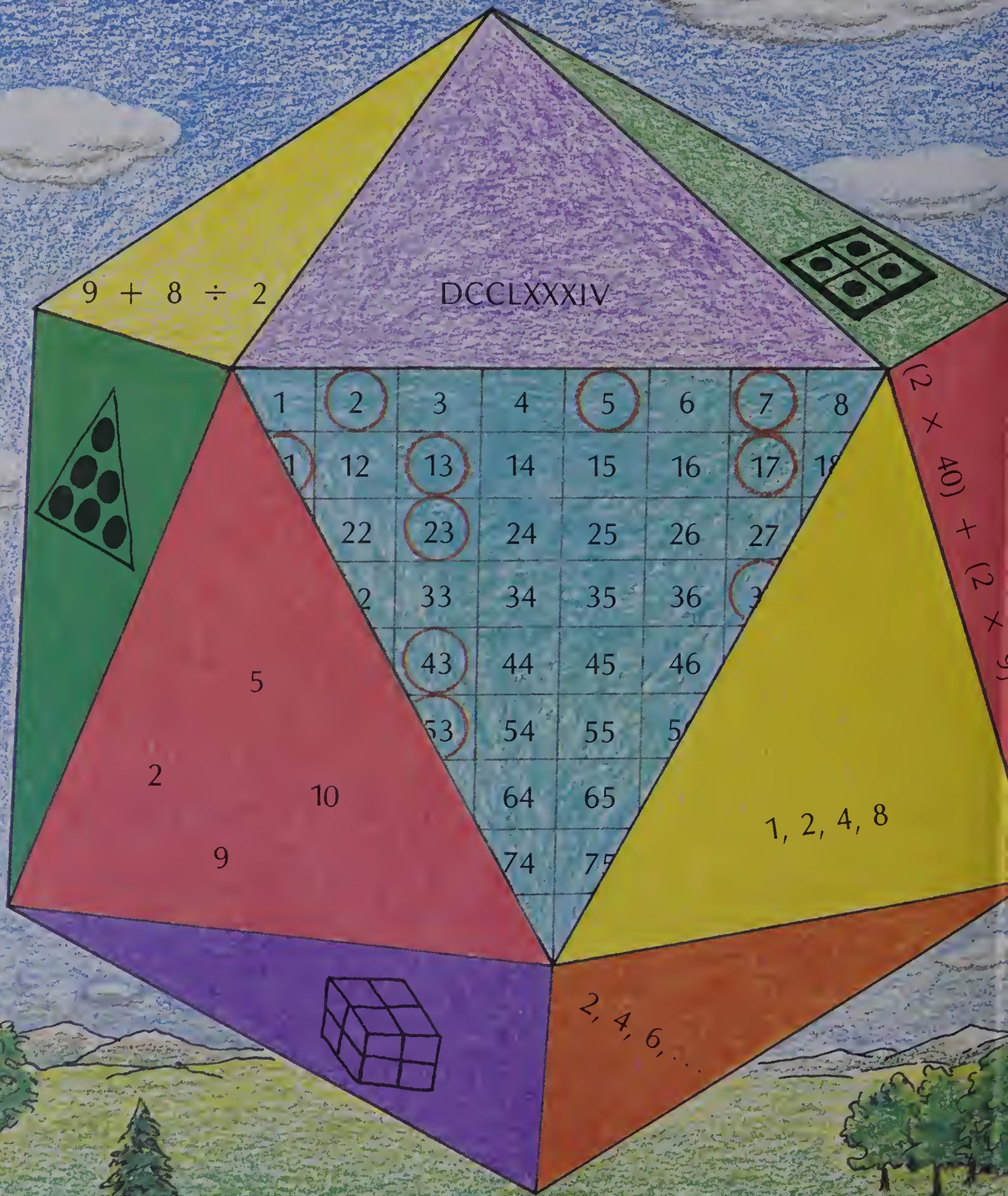
30. 10% of 80 = ■ 31. 37% of 100 = ■ 32. 50% of 25 = ■

33. The Murdocks' car uses 1 L of gasoline every 5 km. If gasoline sells for 36.5¢ a litre, how much does the gasoline for a trip of 100 km cost?

34. Jennifer receives 3¢ for each flyer that she delivers. If she delivers 45 flyers a night for 5 nights, how much money does she earn?

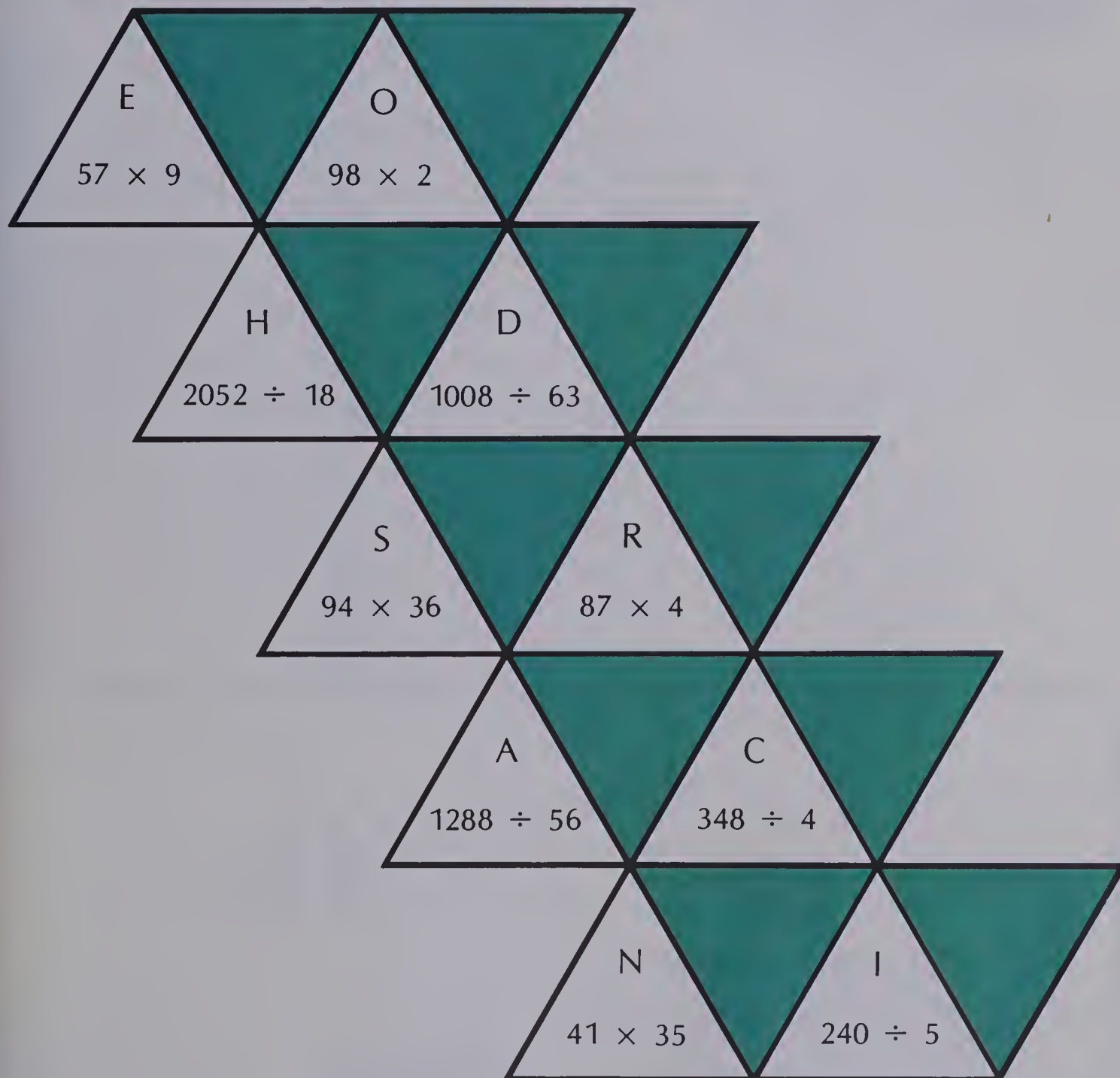
UNIT 13

NUMBER THEORY



Something Special

Find the answers to each calculation. Then decode the word below.



■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
 48 87 196 3384 23 114 513 16 348 196 1435

This word is the name of the object shown on page 288.

Trace the pattern above to make one for yourself.

Multiples



The **multiples** of 5
are: 5, 10, 15, ...
(... means "and so on")

A multiple of 5 is
a **product** of 5
and a whole number.

$$\begin{array}{ccc} 5, & 10, & 15 \\ \uparrow & \uparrow & \uparrow \\ 5 \times 1 & 5 \times 2 & 5 \times 3 \end{array}$$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

EXERCISES

Copy and write the next seven multiples.

- 2, 4, 6, ■, ■, ■, ...
- 3, 6, 9, ■, ■, ■, ...
- 4, 8, 12, ■, ■, ■, ...
- 10, 20, 30, ■, ■, ■, ...
- 6, 12, 18, ■, ■, ■, ...
- 12, 24, 36, ■, ■, ■, ...
- What are the first seven multiples of 7?
- What are the first seven multiples of 8?
- What are the multiples of 9 between 26 and 55?
- What are the multiples of 11 between 10 and 23?
- What are the multiples of 20 between 19 and 61?
- What are the multiples of 5 between 34 and 94?

PRACTICE

Copy and write the next seven multiples.

1. 5, 10, 15, ■, ■, ■, ...
2. 9, 18, 27, ■, ■, ■, ...
3. 11, 22, 33, ■, ■, ■, ...
4. 30, 60, 90, ■, ■, ■, ...
5. 12, 14, 16, ■, ■, ■, ...
6. 15, 18, 21, ■, ■, ■, ...
7. 20, 24, 28, ■, ■, ■, ...
8. 30, 36, 42, ■, ■, ■, ...
9. 49, 56, 63, ■, ■, ■, ...
10. 24, 32, 40, ■, ■, ■, ...

Each group of numbers contains multiples of what number?

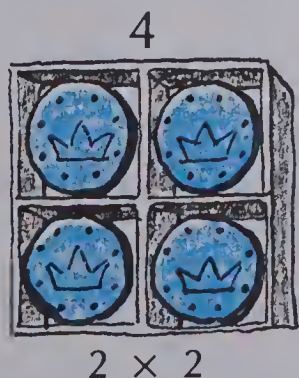
11. 44, 48, 52, 56, 60
12. 26, 28, 30, 32, 34
13. 25, 30, 35, 40, 45
14. 64, 72, 80, 88, 96
15. 6, 21, 9, 15, 27
16. 49, 35, 14, 28, 42
17. What are the first four multiples of 6 after 30?
18. What are the first five multiples of 3 after 17?
19. What are the multiples of 9 less than 50?
20. What are the multiples of 10 less than 51?
21. What are the multiples of 4 between 43 and 65?
22. What are the multiples of 8 between 47 and 73?
23. What are the first ten multiples of 100?

Square Numbers

The checkers show the first 3 **square numbers**.

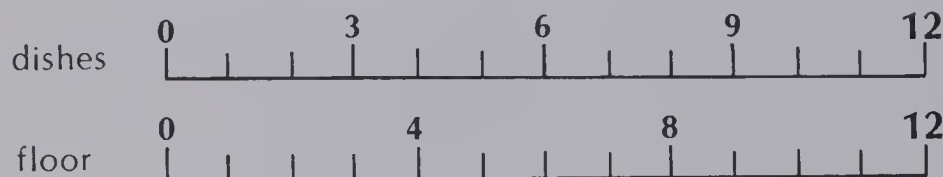
Draw a picture of the next three square numbers.

Name the square numbers less than 230.



Least Common Multiple

Jan helps with the family chores.
She washes dishes every third day.
She sweeps the floor every fourth day.
Today she did both.
In how many days will she do both again?



This problem can be solved by finding the **Least Common Multiple (LCM)** of 3 and 4.

Write the multiples of 3: 3, 6, 9, 12, 15, 18, 21, 24, ...

Write the multiples of 4: 4, 8, 12, 16, 20, 24, 28, ...

The common multiples of 3 and 4 are 12, 24, ...

The **Least** Common Multiple is 12.

The LCM of 3 and 4 is 12.

In 12 days, Jan will have to do both chores.

EXERCISES

Copy the multiples. What is the LCM?

1. 2: 2, 4, 6, 8, 10, 12, ...

2. 5: 5, 10, 15, 20, 25, 30, ...

3: 3, 6, 9, 12, 15, 18, ...

6: 6, 12, 18, 24, 30, 36, ...

LCM = ■

LCM = ■

3. 6: 6, 12, 18, 24, 30, 36, ...

4. 10: 10, 20, 30, 40, 50, 60, ...

8: 8, 16, 24, 32, 40, 48, ...

15: 15, 30, 45, 60, 75, 90, ...

LCM = ■

LCM = ■

Write the multiples of each number. Find the LCM.

5. 4 and 5

6. 6 and 9

7. 3 and 7

8. 2 and 4

9. 4 and 6

10. 8 and 10

PRACTICE

Copy the multiples. What is the LCM?

- | | |
|-------------------------------|--------------------------------|
| 1. 2: 2, 4, 6, 8, 10, 12, ... | 2. 3: 3, 6, 9, 12, 15, 18, ... |
| 4: 4, 8, 12, 16, 20, 24, ... | 6: 6, 12, 18, 24, 30, ... |
| LCM = ■ | LCM = ■ |

Write the multiples of each number. Find the LCM.

- | | | |
|-----------------|-----------------|-----------------|
| 3. 9 and 12 | 4. 8 and 12 | 5. 5 and 15 |
| 6. 5 and 7 | 7. 20 and 30 | 8. 12 and 16 |
| 9. 4 and 7 | 10. 15 and 20 | 11. 14 and 21 |
| 12. 3, 6, and 9 | 13. 2, 3, and 4 | 14. 2, 4, and 5 |
| 15. 3, 5, and 6 | 16. 3, 4, and 6 | 17. 4, 6, and 9 |

True or false?

- 18. The LCM of 7 and 5 is 35.
- 19. The LCM of 16 and 8 is 8.
- 20. The LCM of 1 and 3 is 3.
- 21. The LCM of 4 and 8 is 32.

Solve.

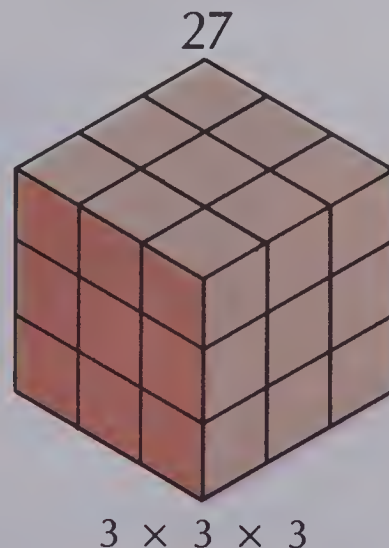
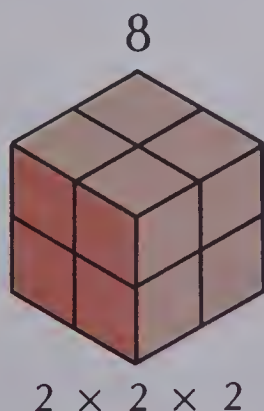
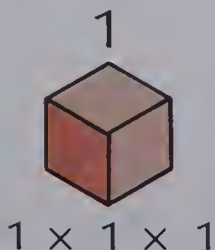
- 22. Janet cuts the lawn every 2 weeks. She washes windows every 5 weeks. How often does she do both in a week?

Cubic Numbers

The cubes show the first 3 cubic numbers.

Draw a picture of the next two cubic numbers.

Name the cubic numbers less than 1001.



Divisibility Rules

2

A number divides evenly by 2
if its last digit is 0, 2, 4, 6, or 8.

$$\begin{array}{r} 15 \\ 2 \overline{)30} \\ \underline{2} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

5

A number divides evenly by 5
if its last digit is 0 or 5.

$$\begin{array}{r} 12 \\ 5 \overline{)60} \\ \underline{5} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

10

A number divides evenly by 10
if its last digit is 0.

$$\begin{array}{r} 40 \\ 10 \overline{)400} \\ \underline{40} \\ 00 \\ \underline{00} \\ 0 \end{array}$$

9

A number divides evenly by 9
if the sum of its digits is 9 or
a multiple of 9.

$$\begin{array}{r} 12 \\ 9 \overline{)108} \\ \underline{9} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

EXERCISES

- Find the quotients of the three numbers divisible by 2.
14, 37, 96, 519, 930
- Find the quotients of the three numbers divisible by 5.
75, 200, 118, 244, 800
- Find the quotients of the three numbers divisible by 10.
55, 130, 408, 580, 900
- Find the quotients of the three numbers divisible by 9.
29, 63, 95, 117, 738

PRACTICE

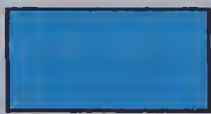
1. Which numbers divide evenly by 10?
a. 25 b. 70 c. 102 d. 690 e. 2006 f. 7650
2. Which numbers divide evenly by 2?
a. 23 b. 76 c. 345 d. 840 e. 3466 f. 8000
3. Which numbers divide evenly by 5?
a. 40 b. 58 c. 549 d. 785 e. 4557 f. 9065
4. Which numbers divide evenly by 9?
a. 72 b. 99 c. 432 d. 774 e. 701 f. 693
5. Copy the chart. Write the quotients which have no remainders.

Number	Divisible by 2	Divisible by 5	Divisible by 9	Divisible by 10
7256				
2425				
3500				
1134				
6000				
8910				

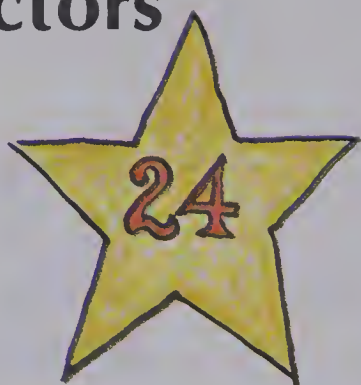
Invisible Divisibles

Find the invisible number in each square.

1. It is between 1255 and 1275. It is divisible by 2 and 5, but not by 9.
2. It is between 8485 and 8510. It is divisible by 2 and 9, but not by 5.



Factors



Multiplications
with a product of 24.

$$\begin{aligned} 24 &= 1 \times 24 \\ 24 &= 2 \times 12 \\ 24 &= 3 \times 8 \\ 24 &= 4 \times 6 \end{aligned}$$

The **factors** of 24 are:
1, 2, 3, 4, 6, 8, 12, 24



Multiplications
with a product of 7.

$$7 = 1 \times 7$$

The **factors** of 7 are:
1, 7



Multiplications
with a product of 9.

$$\begin{aligned} 9 &= 1 \times 9 \\ 9 &= 3 \times 3 \end{aligned}$$

The **factors** of 9 are:
1, 3, 9

EXERCISES

Write the different multiplications for each product. List the factors.

1. $12 = \blacksquare \times 1$
 $12 = \blacksquare \times 2$
 $12 = \blacksquare \times 3$

Factors of 12: $\blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare$

2. $20 = \blacksquare \times 1$
 $20 = \blacksquare \times 2$
 $20 = \blacksquare \times 4$

Factors of 20: $\blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare$

3. $25 = \blacksquare \times \blacksquare$
 $25 = \blacksquare \times \blacksquare$

Factors of 25: $\blacksquare, \blacksquare, \blacksquare$

4. $11 = \blacksquare \times \blacksquare$
 Factors of 11: $\blacksquare, \blacksquare$

5. $30 = \blacksquare \times \blacksquare$
 $30 = \blacksquare \times \blacksquare$
 $30 = \blacksquare \times \blacksquare$
 $30 = \blacksquare \times \blacksquare$

Factors of 30: $\blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare, \blacksquare$

6. $27 = \blacksquare \times \blacksquare$
 $27 = \blacksquare \times \blacksquare$
 Factors of 27: $\blacksquare, \blacksquare, \blacksquare, \blacksquare$

7. 6 8. 8 9. 28 10. 35 11. 32 12. 53

PRACTICE

Write the multiplications for each product. List the factors.

1. $15 = \blacksquare \times \blacksquare$

$15 = \blacksquare \times \blacksquare$

Factors of 15: $\blacksquare, \blacksquare, \blacksquare, \blacksquare$

2. $81 = \blacksquare \times \blacksquare$

$81 = \blacksquare \times \blacksquare$

Factors of 81: $\blacksquare, \blacksquare, \blacksquare$

3. 10

4. 18

5. 21

6. 13

7. 16

8. 40

9. 1

10. 29

11. 19

12. 36

13. 31

14. 50

15. 48

16. 17

17. 42

18. 23

19. 100

20. 49

21. 51

22. 60

True or false? Use divisibility rules.

23. 5 is a factor of 56.

24. 5 is a factor of 345.

25. 2 is a factor of 436.

26. 2 is a factor of 2420.

27. 9 is a factor of 162.

28. 9 is a factor of 43.

29. 10 is a factor of 3425.

30. 10 is a factor of 640.

31. 18 is a factor of 126.

32. 45 is a factor of 225.

REVIEW

A51 Copy and write the next five multiples.

1. 7, 14, 21, ...

2. 60, 120, 180, ...

3. 18, 21, 24, ...

A52 List the multiples. Find the LCM.

4. 6 and 9

5. 5 and 10

6. 6 and 10

7. Copy the chart. Answer yes or no for each.

A53

Number	Divisible by 2	Divisible by 5	Divisible by 9	Divisible by 10
7651				
8340				

A54 List the factors.

8. 33

9. 37

10. 70

11. 64

Prime and Composite Numbers

Multiples of 2: \

Multiples of 3: /

Multiples of 5: |

Multiples of 7: —

7 is divisible only by 1 and 7.

The factors of 7 are 1 and 7.

When a number has only 2 factors, it is called a **prime number**.

20 is divisible by 1, 2, 4, 5, 10, and 20.

The factors of 20 are: 1, 2, 4, 5, 10, and 20.

When a number has more than 2 factors, it is called a **composite number**.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

EXERCISES

List the factors for each. Write prime or composite.

1. 2
2. 8
3. 14
4. 21
5. 16
6. 17
7. 5
8. 27
9. 12
10. 17

Write the prime numbers in each group.

11. 6, 7, 8
12. 2, 3, 4
13. 21, 22, 23

Write the composite numbers in each group.

14. 10, 11, 12
15. 19, 20, 21
16. 37, 38, 39

17. a. List the prime numbers less than 100.
- b. List the composite numbers up to 100.

PRACTICE

List the factors for each. Write prime or composite.

- | | | | | |
|-------|-------|-------|-------|--------|
| 1. 11 | 2. 15 | 3. 9 | 4. 29 | 5. 71 |
| 6. 25 | 7. 41 | 8. 22 | 9. 31 | 10. 34 |

True or false?

- | | |
|------------------------------|--------------------------|
| 11. 42 is a composite number | 12. 51 is a prime number |
| 13. 49 is a composite number | 14. 57 is a prime number |
| 15. 81 is a prime number | 16. 67 is a prime number |

17. Make a chart of the numbers up to 200.

Cross out the multiples of 2, 3, 4, 7, 11, and 13.

List all the prime numbers less than 200.

How many composite numbers are there up to 200?

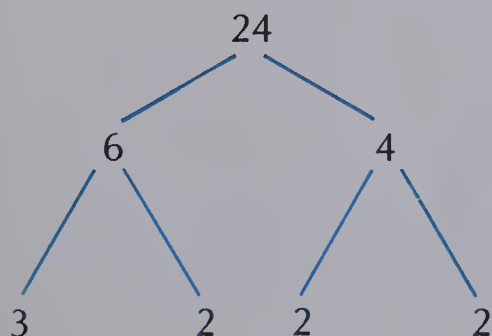
18. Is "1" prime or composite?

Read the definitions carefully.

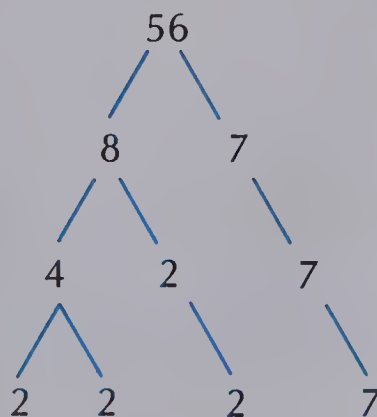
Prime Factors

We can make a **factor tree** to write a number as the product of prime factors.

Study the examples.



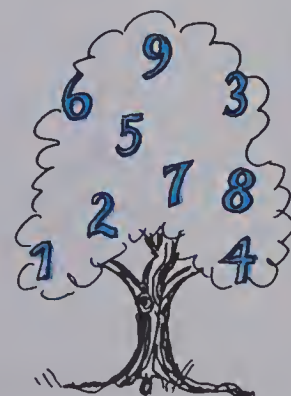
$$24 = 3 \times 2 \times 2 \times 2$$



$$56 = 2 \times 2 \times 2 \times 7$$

Write each as the product of prime factors.

- a. 12
- b. 32
- c. 36
- d. 48



Greatest Common Factor

A flower arranger has 24 roses and 32 carnations. What is the greatest number of bouquets he can make up so that each bouquet has the same number of roses and the same number of carnations?

This problem can be solved by finding the **Greatest Common Factor (GCF)** of 24 and 32.

List the **factors** of 24: 1, 2, 3, 4, 6, 8, 12, 24

List the **factors** of 32: 1, 2, 4, 8, 16, 32

The common factors of 24 and 32 are: 1, 2, 4, and 8.
The **Greatest Common Factor (GCF)** is 8.

Now we know that the florist can make 8 bouquets — with 3 roses and 4 carnations in each bouquet.



EXERCISES

Copy each list of factors. What is the GCF?

1. 10: 1, 2, 5, 10
12: 1, 2, 3, 4, 6, 12
GCF = ■

2. 6: 1, 2, 3, 6
18: 1, 2, 3, 6, 9, 18
GCF = ■

3. 13: 1, 13
26: 1, 2, 13, 26
GCF = ■

4. 34: 1, 2, 17, 34
51: 1, 3, 17, 51
GCF = ■

List the factors of each. Find the GCF.

5. 6: ■, ■, ■, ■
8: ■, ■, ■, ■
GCF = ■

6. 17: ■, ■
19: ■, ■
GCF = ■

7. 5 and 15

8. 20 and 24

PRACTICE

What is the GCF?

1. 9: 1, 3, 9

12: 1, 2, 3, 4, 6, 12

GCF = ■

2. 28: 1, 2, 4, 7, 14, 28

42: 1, 2, 3, 6, 7, 14, 21, 42

GCF = ■

List the factors of each. Find the GCF.

3. 16 and 20

4. 24 and 30

5. 32 and 40

6. 6 and 7

7. 9 and 15

8. 11 and 13

9. 14 and 28

10. 36 and 45

11. 23 and 25

12. 16 and 18

13. 26 and 39

14. 31 and 33

True or false?

15. The GCF of 10 and 20 is 10.

16. The GCF of 7 and 9 is 1.

17. The GCF of 3 and 21 is 1.

18. The GCF of 15 and 30 is 15.

Find the GCF.

19. 12, 18, and 24

20. 25, 100, and 50

21. 36, 24, and 72

22. 6, 12, and 39

23. 10, 55, and 30

24. 7, 14, and 121

Solve.

25. What is the greatest number of identical bouquets that a florist can make up from 28 roses and 20 carnations?

Perfect Numbers

Factors of 6: 1, 2, 3, ~~6~~

Add and multiply all the factors except 6.

$$1 + 2 + 3 = 6$$

$$1 \times 2 \times 3 = 6$$

6 is called a **perfect number**.

Can you find the next perfect number?

Order of Operations

We use these rules to **simplify** number expressions.

Rule 1: Multiply and divide before adding and subtracting.

$$20 - 2 \times 3 = 20 - 6 \\ = 14$$

$$6 \div 2 + 3 \times 5 = 3 + 15 \\ = 18$$

Rule 2: Do the work inside the parentheses first.

$$5 \times 2 + 3 = 10 + 3 \\ = 13$$

$$5 \times (2 + 3) = 5 \times 5 \\ = 25$$

EXERCISES

Use Rule 1 to evaluate the expression.

1. $16 \div 2 + 4 = \blacksquare + 4$
 $= \blacksquare$

2. $5 + 4 \times 7 = 5 + \blacksquare$
 $= \blacksquare$

3. $10 \div 2 - 2 \times 2 = \blacksquare - 4$
 $= \blacksquare$

4. $3 \times 8 - 9 \div 3 = \blacksquare - 3$
 $= \blacksquare$

5. $19 + 5 \times 7$

6. $8 \times 6 - 4 \times 2$

7. $6 \times 9 + 5 \div 5$

8. $100 - 19 \times 2$

Use Rule 2 to evaluate the expression.

9. $(7 - 2) \times 4 = \blacksquare \times 4$
 $= \blacksquare$

10. $7 - (5 - 3) = 7 - \blacksquare$
 $= \blacksquare$

11. $28 \div (3 + 1) = 28 \div \blacksquare$
 $= \blacksquare$

12. $15 \times (10 - 8) = 15 \times \blacksquare$
 $= \blacksquare$

13. $10 - (4 \times 2)$

14. $(2 + 4) \times 5 + 2$

15. $35 \div (3 + 2) - 12$

16. $7 \times (6 + 4) - 15$

PRACTICE

Use Rule 1 to evaluate the expression.

- | | | |
|------------------------------|----------------------------|-----------------------------|
| 1. $28 \div 7 + 35$ | 2. $43 + 9 \times 8$ | 3. $15 + 20 + 8$ |
| 4. $8 \times 4 + 3 \times 3$ | 5. $7 \times 5 - 6 \div 2$ | 6. $57 - 50 \div 2$ |
| 7. $34 + 60 \div 2$ | 8. $16 \div 4 - 21 \div 7$ | 9. $30 \div 5 + 6 \times 2$ |

Use Rule 2 to evaluate the expression.

- | | | |
|----------------------------|----------------------------|---------------------------|
| 10. $6 + (15 - 9)$ | 11. $15 + (12 \div 2)$ | 12. $23 - (19 - 7)$ |
| 13. $12 \times (8 + 4)$ | 14. $(42 \div 3) + 35$ | 15. $26 \times (39 - 31)$ |
| 16. $5 \times (2 + 3) - 4$ | 17. $30 \div (10 - 4) + 7$ | 18. $(10 - 4) \times 25$ |

Evaluate the expression using the order of operations.

- | | | |
|-----------------------------|------------------------------------|-----------------------------|
| 19. $56 \div 8 - 2$ | 20. $71 + (117 \div 9)$ | 21. $(14 - 3) \times 2 + 1$ |
| 22. $79 + 49 \div 7$ | 23. $6 \times 2 - 8 \div 2$ | 24. $45 - (9 \div 3)$ |
| 25. $(45 + 25) \div 7 - 10$ | 26. $10 + (49 \div 7) \div 7 + 23$ | |

Write an expression to solve each problem.

27. The Reinhart family is moving. They have 64 large boxes and they have rented a van that can carry 8 boxes at a time. They also have 2 full loads of odds and ends. How many full loads do they have for the van?
28. A warehouse forklift can carry 3 crates at a time. Five delivery trucks are lined up outside and each truck is carrying 24 crates. How many trips will be needed to unload all the trucks?

USING THE CALCULATOR

Use the order of operations and a calculator to solve each.

- | | |
|-------------------------------|------------------------------|
| a. $5548 \div 98 - 794$ | b. $8523 + (3936 \div 32)$ |
| c. $(6000 - 947) \times 859$ | d. $437 + 7980 \div 84$ |
| e. $3749 \times (6512 - 908)$ | f. $10\,010 - 4032 \div 112$ |
| g. $9001 - 57 \times 85$ | h. $1652 \times (685 + 967)$ |

Special Properties

Special properties make calculating easier.

We can add or multiply in any order.

$$100 + 46$$

$$11 + 46 + 89 = 146$$

$$100 \times 30$$

$$25 \times 30 \times 4 = 3000$$

We can rewrite a number as a sum or difference.

$$8 \times 73 = 584$$

$$8 \times (70 + 3)$$

$$= 8 \times 70 + 8 \times 3$$

$$= 560 + 24$$

$$= 584$$

$$9 \times 99 = 891$$

$$9 \times (100 - 1)$$

$$= 9 \times 100 - 9 \times 1$$

$$= 900 - 9$$

$$= 891$$

EXERCISES

Calculate using the special properties.

1. $29 + 32 + 71 = \blacksquare$

$$100 + 32$$

2. $6 \times 7 \times 5 = \blacksquare$

$$30 \times 7$$

3. $39 + 16 + 84 = \blacksquare$

$$39 + 100$$

4. $9 \times 8 \times 5 = \blacksquare$

$$9 \times 40$$

5. $15 + 48 + 85$

6. $45 + 19 + 55$

7. $25 \times 37 \times 4$

8. $15 \times 9 \times 2$

9. $9 + 191 + 56$

10. $2 \times 15 \times 8$

12. 7×68

11. $4 \times 86 = \blacksquare$

13. 9×35

$$4 \times 80 + 4 \times 6$$
$$= 320 + 24$$

14. 7×98

15. 4×88

PRACTICE

Calculate using the special properties.

- | | | | |
|----------------------------|----------------------------|-------------------|-------------------|
| 1. $17 + 29 + 83$ | 2. $4 \times 9 \times 5$ | | |
| 3. $20 \times 37 \times 5$ | 4. $214 + 87 + 86$ | | |
| 5. $62 + 95 + 38$ | 6. $4 \times 7 \times 50$ | | |
| 7. $14 + 75 + 25$ | 8. $2 \times 5 \times 9$ | | |
| 9. $4 \times 15 \times 6$ | 10. $47 + 98 + 102$ | | |
| 11. $29 + 183 + 17$ | 12. $9 \times 4 \times 25$ | | |
| 13. 8×97 | 14. 3×92 | 15. 6×18 | 16. 5×73 |
| 17. 4×57 | 18. 9×71 | 19. 7×57 | 20. 2×94 |

Calculate.

- | | |
|-----------------------------------|------------------------------------|
| 21. $3 \times 89 + 7 \times 89$ | 22. $127 \times 12 - 127 \times 2$ |
| 23. 4×125 | 24. $8 \times 43 + 8 \times 7$ |
| 25. $86 \times 5 + 14 \times 5$ | 26. $59 + 63 + 41 - 13$ |
| 27. $45 + 17 + 55 + 26 + 83 + 74$ | |

Zero and One

Calculate the answer mentally.

Write only the answer.

a. $4 \times (5 - 5) = \blacksquare$

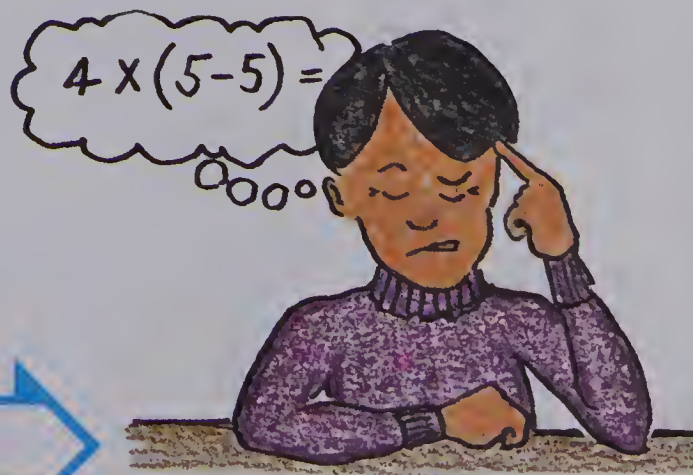
b. $0 + 7 \div 7 = \blacksquare$

c. $(1 \times 1) - (1 \times 0) = \blacksquare$

e. $(16 + 29) \times 0 = \blacksquare$

d. $12 \times (12 - 12) = \blacksquare$

f. $(4 \div 4) \times (6 \div 6) = \blacksquare$



Roman Numerals

The Romans used these numerals to write numbers.



If a larger numeral is first, add.

If a smaller numeral is first, subtract.

$6 = VI$

$V + I$

$4 = IV$

$I \text{ from } V$

$11 = XI$

$X + I$

$9 = IX$

$I \text{ from } X$

$61 = LXI$

$L + X + I$

$40 = XL$

$X \text{ from } L$

$110 = CX$

$C + X$

$90 = XC$

$X \text{ from } C$

$701 = DCCI$

$D + C + C + I$

$400 = CD$

$C \text{ from } D$

$2155 = MMCLV$

$M + M + C + L + V$

$900 = CM$

$C \text{ from } M$

Never use the same letter (numeral) more than three times in a row.

EXERCISES

Write each numeral in standard form.

- | | | | | |
|-----------|----------|----------|-----------|------------|
| 1. V | 2. VI | 3. VII | 4. VIII | 5. IV |
| 6. X | 7. XI | 8. XII | 9. XIII | 10. IX |
| 11. XX | 12. XXI | 13. XXII | 14. XXIII | 15. XXIV |
| 16. XV | 17. XVI | 18. XVII | 19. XVIII | 20. XIX |
| 21. L | 22. LX | 23. LXX | 24. LXXX | 25. XL |
| 26. C | 27. XC | 28. CX | 29. CXC | 30. CCX |
| 31. D | 32. CD | 33. DC | 34. DCC | 35. DCCC |
| 36. M | 37. CM | 38. MC | 39. MCC | 40. MCCC |
| 41. II | 42. XVII | 43. XXIV | 44. LIX | 45. LXXXV |
| 46. CCLII | 47. MCM | 48. MLIX | 49. MXCI | 50. CMXLIV |

Write Roman numerals.

- | | | | | |
|---------|---------|----------|----------|----------|
| 51. 3 | 52. 8 | 53. 15 | 54. 9 | 55. 14 |
| 56. 18 | 57. 33 | 58. 42 | 59. 76 | 60. 94 |
| 61. 183 | 62. 647 | 63. 2153 | 64. 4290 | 65. 8429 |

PRACTICE

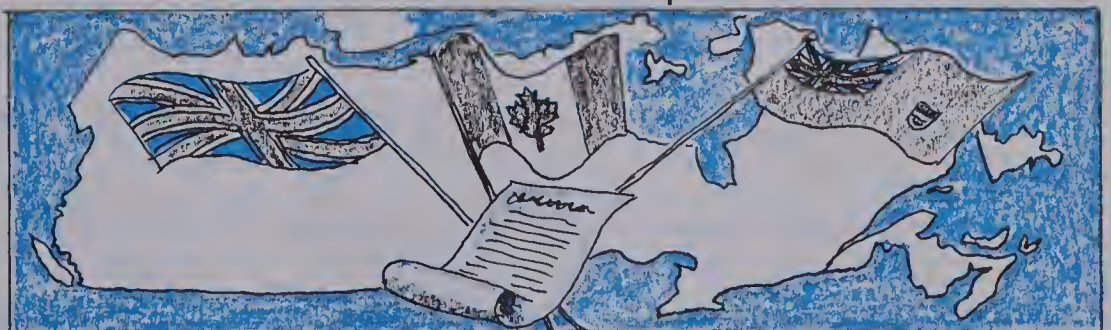
1. Count from 1 to 10 in Roman numerals.
2. Count from 90 to 100 in Roman numerals.
3. Count by 5s from 5 to 50 in Roman numerals.
4. Count by 10s from 10 to 110 in Roman numerals.
5. Count by 100s from 100 to 1000 in Roman numerals.
6. Count by 500s from 500 to 5500 in Roman numerals.
7. Write the numerals in order from smallest to largest to find the name of a famous Roman.



Important Dates

Rewrite each numeral in standard form. You will find important dates in Canada's history.

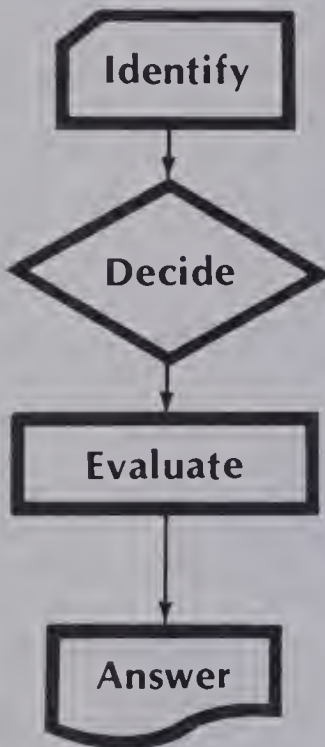
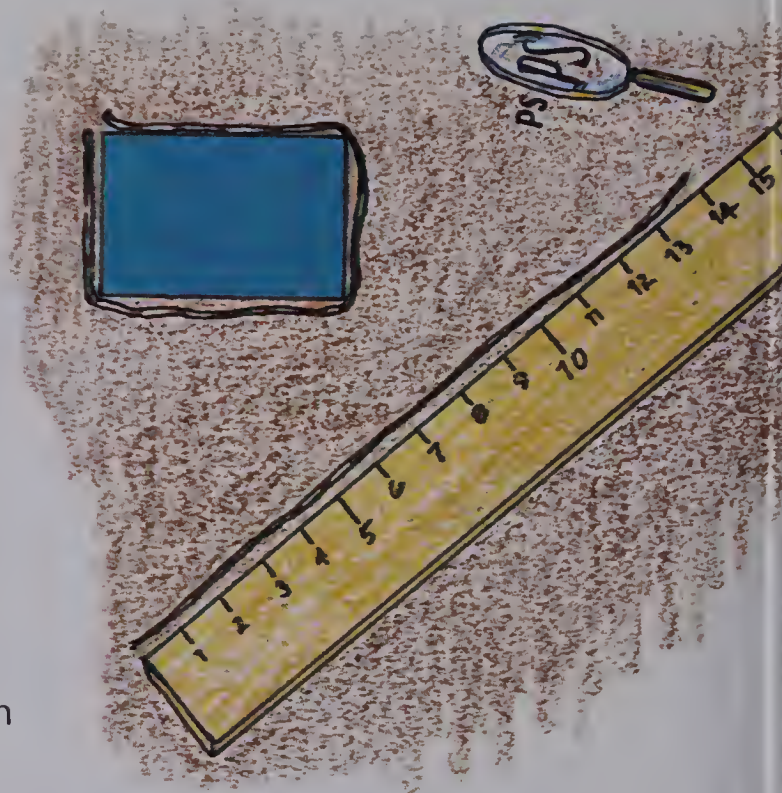
- a. MDCCCLXVII
- b. MDCVIII
- c. MCDXCVII



Problem Solving

A rectangle has an area of 12 cm^2 and a perimeter of 14 cm .

What are the lengths of its sides?



area of 12 cm^2
perimeter of 14 cm

Factor 12 and test
the perimeter for each
pair of factors.

$$1 \times 12 = 12$$

$$2 \times 6 = 12$$

$$3 \times 4 = 12$$

$$1 + 1 + 12 + 12 = 26$$

$$2 + 2 + 6 + 6 = 16$$

$$3 + 3 + 4 + 4 = 14$$

The lengths of the sides are 3 cm and 4 cm .

EXERCISES

Solve. Use the divisibility rules.

1. A rectangle has an area of 12 cm^2 and a perimeter of 26 cm . Find the lengths of its sides.
2. A rectangle has an area of 24 cm^2 and a perimeter of 22 cm . Find the lengths of its sides.
3. What two numbers have a product of 24 and a sum of 11?
4. What two numbers have a product of 36 and a sum of 20?

PRACTICE

Solve.

1. A floor covering has an area of 18 cm^2 and a perimeter of 18 cm. Find the lengths of its sides.
2. What two numbers have a sum of 8 and a product of 15?
3. What two numbers have a product of 96 and a sum of 20?
4. A swimming pool has an area of 108 m^2 . What are the length and width of the rectangular pool if its perimeter is 42 m?
5. A group of students are to share equally 45 cookies and 84 carrot sticks. How many cookies and carrot sticks does each student get? (*Hint!* Factor 45 and 84 to find how many students there are.)
6. A classroom has 15 dictionaries and 10 atlases.
How can the teacher divide the class of 30 into groups so that each group has the same number of each book?

REVIEW

- A55
1. Write the prime numbers between 4 and 14.
 2. Write the composite numbers between 13 and 23.

- A56
- List the factors for each. Find the GCF.
- | | | |
|--------------|--------------|--------------|
| 3. 12 and 18 | 4. 20 and 28 | 5. 18 and 30 |
|--------------|--------------|--------------|

- A57
- Simplify.
- | | | |
|------------------------|----------------------|----------------------|
| 6. $23 - (6 \times 2)$ | 7. $15 \times 3 - 2$ | 8. $16 \div (4 + 4)$ |
|------------------------|----------------------|----------------------|

- A58
- Write the answer.
- | | | |
|-------------------|------------------------------|------------------------------------|
| 9. $32 + 54 + 68$ | 10. $(13 \times 5) \times 4$ | 11. $(7 \times 20) + (7 \times 3)$ |
|-------------------|------------------------------|------------------------------------|

- N22
- Write the standard numeral.
- | | | | |
|---------|---------|--------------|-----------|
| 12. VII | 13. XIX | 14. DCCCXXIV | 15. MXLIX |
|---------|---------|--------------|-----------|

TEST

UNIT 13

Copy and write the next five multiples.

1. 6, 12, 18, ... 2. 9, 18, 27, ... 3. 24, 28, 32, ...

List the multiples of each. Find the LCM.

4. 6 and 8 5. 4 and 6 6. 5 and 7

7. Copy the chart. Write the quotients which have no remainder.

Number	Divisible by 2	Divisible by 5	Divisible by 9	Divisible by 10
4176				
5040				
1215				

List the factors.

8. 18 9. 36 10. 41
11. Write the prime numbers between 15 and 24.
12. Write the composite numbers between 2 and 13.

List the factors of each. Find the GCF.

13. 9 and 18 14. 27 and 36 15. 14 and 15

Evaluate.

16. $57 - (6 + 4)$ 17. $22 \times 6 - 5$ 18. $38 \div (8 - 6)$

Calculate mentally. Write the answer.

19. $65 + 28 + 35$ 20. $(39 \times 4) \times 25$ 21. 3×93

Write the number in Roman numerals.

22. 67 23. 790 24. 1048

Solve.

25. From the numbers below, decide which amount of nickels 9 people can share evenly.
- a. 135 b. 418 c. 726

MEASUREMENT

- Jake had scores of 157, 233, and 204 in a bowling tournament. What was his average score?
- The lengths of the Great Lakes are 560 km, 490 km, 386 km, 330 km, and 309 km. What is the average length?

Add or subtract.

3. \$16.34	4. \$20.57	5. \$48.03	6. \$10.90	7. \$60.00
+ 28.79	+ 9.64	— 9.15	+ 30.26	— 25.98

List the coins and bills you would give as change.

- | | | |
|-----------------|----------------|------------------|
| 8. Had: \$15.00 | 9. Had: \$5.00 | 10. Had: \$20.00 |
| Spent: \$13.25 | Spent: \$2.37 | Spent: \$11.95 |

- An Air Canada timetable showed the following departure and arrival times.

Vancouver to Calgary	11:30 — 13:45
Winnipeg to Toronto	12:15 — 15:25
Regina to Montreal	09:25 — 17:30

How long is each flight?

- Copy and complete the chart.

Scale	Length in Drawing	Real Length
1 cm = 3 m	6 cm	
1 cm = 3 m		15 m
1 cm = 5 km	3 cm	
1 cm = 5 km		40 km
1 cm = 10 m	10 cm	
1 cm = 10 m		150 m

UNIT 14

FRACTIONS

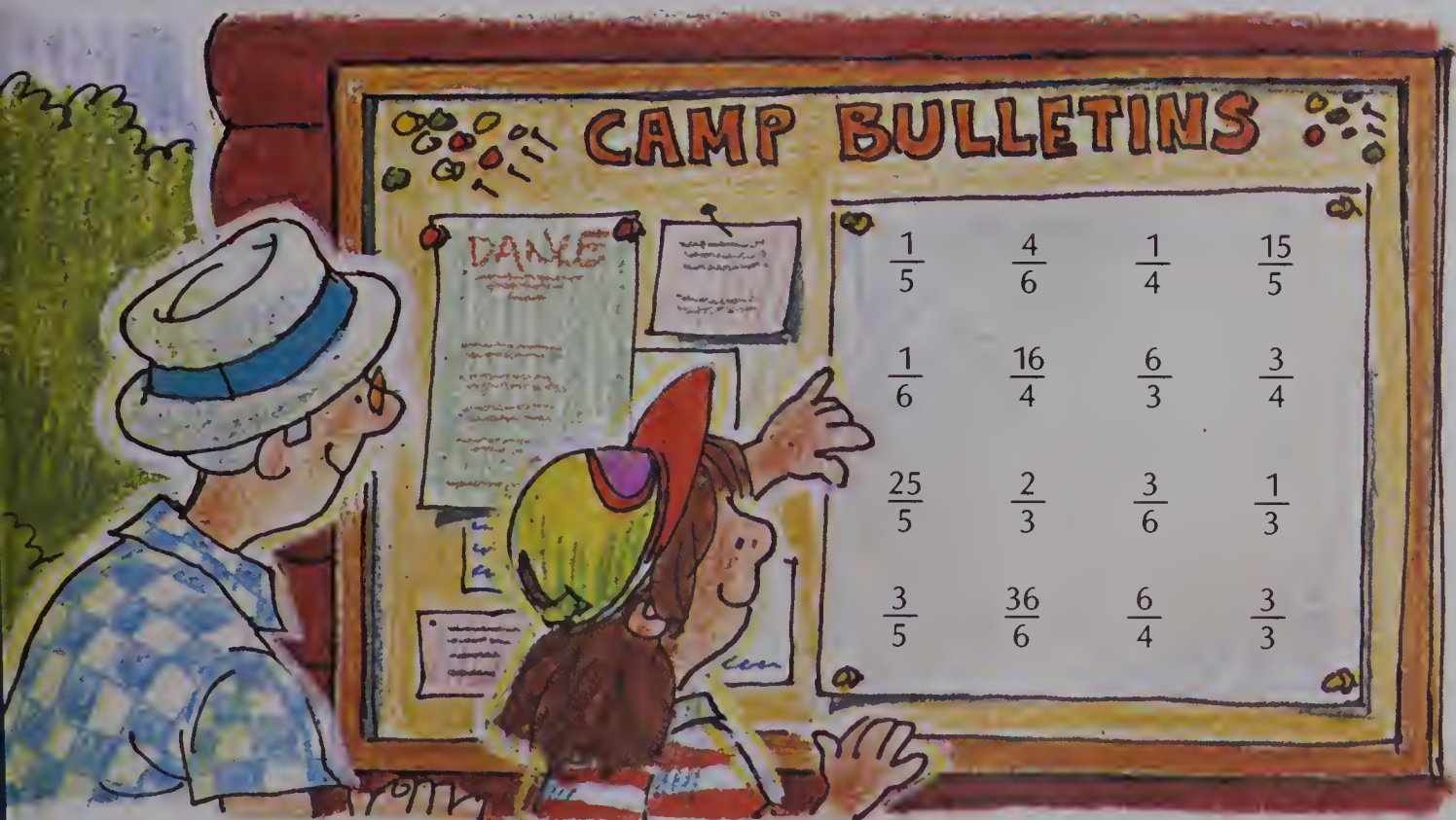


Fraction Hunt

For each fraction in the chart, find an equivalent fraction in the illustration.

How are the answers in each row alike?

1. $\frac{6}{9}$	2. $\frac{2}{1}$	3. $\frac{1}{1}$	4. $\frac{2}{6}$
5. $\frac{2}{10}$	6. $\frac{3}{1}$	7. $\frac{6}{10}$	8. $\frac{5}{1}$
9. $\frac{2}{8}$	10. $\frac{9}{12}$	11. $\frac{4}{1}$	12. $\frac{3}{2}$
13. $\frac{2}{3}$	14. $\frac{2}{12}$	15. $\frac{6}{1}$	16. $\frac{1}{2}$



Adding Fractions

Alice watered $\frac{1}{4}$ of the lawn in the

morning and $\frac{2}{4}$ in the afternoon.

How much of the lawn did she water?

1 fourth + 2 fourths = 3 fourths

$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$$

$$\begin{array}{r} \frac{1}{4} \\ + \frac{2}{4} \\ \hline \frac{3}{4} \end{array}$$

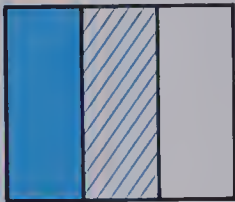
Alice watered $\frac{3}{4}$ of the lawn.



EXERCISES

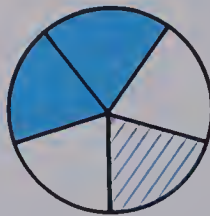
Add.

1.



$$\frac{1}{3} + \frac{1}{3}$$

2.



$$\frac{2}{5} + \frac{1}{5}$$

3.



$$\frac{2}{6} + \frac{3}{6}$$

4. 1 fifth + 3 fifths

5. 2 sevenths + 3 sevenths

6. 3 tenths + 4 tenths

7. 4 eighths + 3 eighths

Copy and complete.

8. $\frac{1}{8} + \frac{2}{8} = \frac{\blacksquare}{8}$

9. $\frac{1}{4} + \frac{1}{4} = \frac{\blacksquare}{4}$

10. $\frac{2}{3} + \frac{1}{3} = \frac{\blacksquare}{3}$

11. $\frac{1}{6} + \frac{4}{6} = \frac{\blacksquare}{\blacksquare}$

12. $\frac{3}{5} + \frac{1}{5} = \frac{\blacksquare}{\blacksquare}$

13. $\frac{2}{9} + \frac{3}{9} = \frac{\blacksquare}{\blacksquare}$

Add.

14.
$$\begin{array}{r} \frac{4}{8} \\ + \frac{1}{8} \\ \hline \end{array}$$

15.
$$\begin{array}{r} \frac{1}{10} \\ + \frac{4}{10} \\ \hline \end{array}$$

16.
$$\begin{array}{r} \frac{1}{7} \\ + \frac{4}{7} \\ \hline \end{array}$$

17.
$$\begin{array}{r} \frac{1}{4} \\ + \frac{1}{4} \\ \hline \end{array}$$

18.
$$\begin{array}{r} \frac{2}{5} \\ + \frac{2}{5} \\ \hline \end{array}$$

PRACTICE

Add.

- | | | | |
|---------------------------------|-----------------------------------|-------------------------------------|-----------------------------------|
| 1. $\frac{2}{6} + \frac{3}{6}$ | 2. $\frac{1}{5} + \frac{3}{5}$ | 3. $\frac{1}{2} + \frac{1}{2}$ | 4. $\frac{2}{8} + \frac{2}{8}$ |
| 5. $\frac{2}{3} + \frac{1}{3}$ | 6. $\frac{1}{6} + \frac{3}{6}$ | 7. $\frac{2}{10} + \frac{7}{10}$ | 8. $\frac{3}{9} + \frac{4}{9}$ |
| 9. $\frac{2}{7} + \frac{4}{7}$ | 10. $\frac{3}{6} + \frac{1}{6}$ | 11. $\frac{1}{10} + \frac{3}{10}$ | 12. $\frac{2}{15} + \frac{2}{15}$ |
| 13. $\frac{1}{4} + \frac{3}{4}$ | 14. $\frac{3}{12} + \frac{1}{12}$ | 15. $\frac{1}{100} + \frac{2}{100}$ | 16. $\frac{1}{7} + \frac{3}{7}$ |
| 17. $\frac{2}{5} + \frac{2}{5}$ | 18. $\frac{3}{16} + \frac{4}{16}$ | 19. $\frac{5}{8} + \frac{2}{8}$ | 20. $\frac{8}{25} + \frac{7}{25}$ |

Solve.

21. Bill read $\frac{1}{6}$ of his book one day and $\frac{3}{6}$ the next day.
How much of his book did he read?
22. Fran and Martina went on a hike. They hiked $\frac{2}{10}$ of the distance the first hour and $\frac{1}{10}$ the second hour. How much of the distance had they hiked?

Simplifying Fractions

You can simplify a fraction such as $\frac{10}{20}$ by dividing both its numerator and denominator by the same number.

$$\frac{10}{20} = \frac{10 \div 2}{20 \div 2} = \frac{5}{10} \quad \text{or} \quad \frac{10}{20} = \frac{10 \div 5}{20 \div 5} = \frac{2}{4} \quad \text{or} \quad \frac{10}{20} = \frac{10 \div 10}{20 \div 10} = \frac{1}{2}$$

Which of the answers is the **simplest**?

Why?

Write each fraction in simplest form.

- a. $\frac{6}{12}$ b. $\frac{6}{8}$ c. $\frac{12}{18}$ d. $\frac{30}{50}$ e. $\frac{9}{15}$

Subtracting Fractions

When Greg opened his lemonade stand at 14:00, the jug of lemonade was $\frac{4}{5}$ full. By 15:00, he had sold $\frac{3}{5}$ of the jug. How full was the jug then?

4 fifths — 3 fifths = 1 fifth

$$\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$$

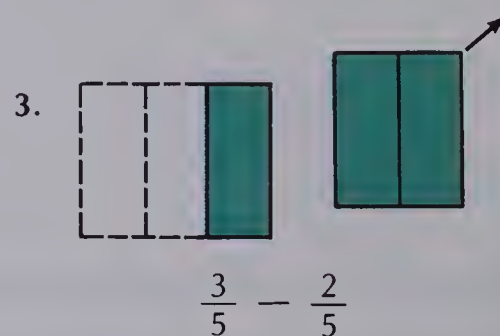
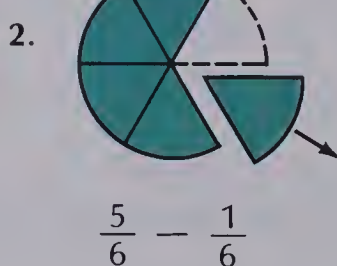
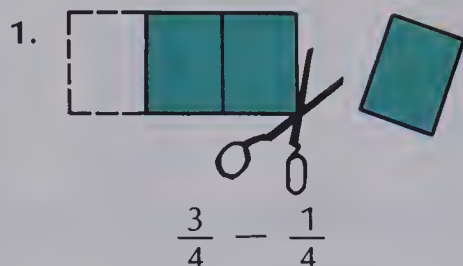
The jug was $\frac{1}{5}$ full.

$$\begin{array}{r} \frac{4}{5} \\ - \frac{3}{5} \\ \hline \frac{1}{5} \end{array}$$



EXERCISES

Subtract.



Copy and complete.

4. $\frac{5}{7} - \frac{3}{7} = \blacksquare$

5. $\frac{5}{8} - \frac{2}{8} = \blacksquare$

6. $\frac{10}{10} - \frac{1}{10} = \blacksquare$

7. $\frac{4}{6} - \frac{1}{6} = \blacksquare$

8. $\frac{5}{5} - \frac{2}{5} = \blacksquare$

9. $\frac{2}{9} - \frac{1}{9} = \blacksquare$

Subtract.

10.
$$\begin{array}{r} \frac{3}{4} \\ - \frac{2}{4} \\ \hline \end{array}$$

11.
$$\begin{array}{r} \frac{3}{5} \\ - \frac{1}{5} \\ \hline \end{array}$$

12.
$$\begin{array}{r} \frac{5}{6} \\ - \frac{4}{6} \\ \hline \end{array}$$

13.
$$\begin{array}{r} \frac{9}{10} \\ - \frac{6}{10} \\ \hline \end{array}$$

14.
$$\begin{array}{r} \frac{7}{8} \\ - \frac{5}{8} \\ \hline \end{array}$$

15.
$$\begin{array}{r} \frac{6}{7} \\ - \frac{2}{7} \\ \hline \end{array}$$

16.
$$\begin{array}{r} \frac{11}{12} \\ - \frac{5}{12} \\ \hline \end{array}$$

17.
$$\begin{array}{r} \frac{7}{9} \\ - \frac{4}{9} \\ \hline \end{array}$$

18.
$$\begin{array}{r} \frac{11}{15} \\ - \frac{6}{15} \\ \hline \end{array}$$

19.
$$\begin{array}{r} \frac{8}{14} \\ - \frac{6}{14} \\ \hline \end{array}$$

PRACTICE

Subtract.

1. $\frac{4}{5} - \frac{1}{5}$
2. $\frac{5}{6} - \frac{2}{6}$
3. $\frac{7}{8} - \frac{2}{8}$
4. $\frac{3}{4} - \frac{2}{4}$
5. $\frac{3}{7} - \frac{1}{7}$
6. $\frac{7}{10} - \frac{3}{10}$
7. $\frac{5}{8} - \frac{3}{8}$
8. $\frac{5}{5} - \frac{1}{5}$
9. $\frac{6}{7} - \frac{5}{7}$
10. $\frac{5}{10} - \frac{4}{10}$
11. $\frac{4}{4} - \frac{3}{4}$
12. $\frac{8}{9} - \frac{1}{9}$
13. $\frac{11}{12} - \frac{8}{12}$
14. $\frac{15}{100} - \frac{2}{100}$
15. $\frac{6}{50} - \frac{5}{50}$
16. $\frac{12}{15} - \frac{5}{15}$
17. $\frac{7}{12} - \frac{5}{12}$
18. $\frac{11}{20} - \frac{7}{20}$
19. $\frac{24}{30} - \frac{14}{30}$
20. $\frac{6}{8} - \frac{3}{8}$

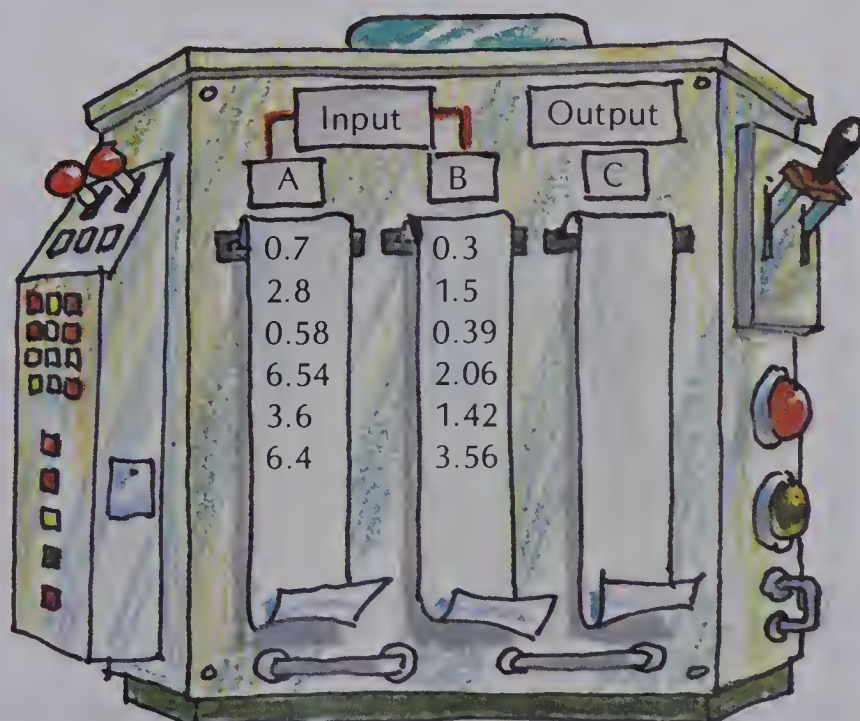
Solve.

21. Nicole had three quarters of a dollar. She spent one quarter. What fraction of a dollar did she have left?
22. Frank had to paint $\frac{5}{6}$ of the garage white. By the end of the morning he had painted $\frac{4}{6}$. How much remained to be painted?

Computer Program

Copy and complete the chart.

- 1 READ A AND B
- 2 $C = A - B$
- 3 PRINT C
- 4 END



Mixed Numerals

$$\frac{3}{2}$$



$$\frac{2}{2} \text{ and } \frac{1}{2}$$

$$1 \text{ and } \frac{1}{2}$$



$$1\frac{1}{2}$$

$$\frac{7}{4}$$



$$\frac{4}{4} \text{ and } \frac{3}{4}$$

$$1 \text{ and } \frac{3}{4}$$



$$1\frac{3}{4}$$

EXERCISES

Find the mixed numeral.

1.



$$\frac{5}{4} = 1\frac{\blacksquare}{4}$$

2.



$$\frac{7}{5} = 1\frac{2}{5}$$

3.



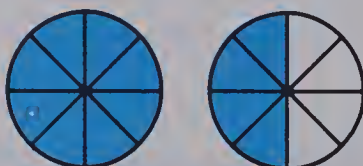
$$\frac{4}{3} = 1\frac{\blacksquare}{3}$$

4.



$$\frac{11}{6} = \frac{6}{6} + \frac{5}{6} = 1\frac{\blacksquare}{6}$$

5.



$$\frac{12}{8} = \frac{8}{8} + \frac{4}{8} = 1\frac{4}{8}$$

6.



$$\frac{14}{10} = \frac{10}{10} + \frac{4}{10} = 1\frac{\blacksquare}{10}$$

$$7. \quad \frac{8}{5} = \frac{5}{5} + \frac{\blacksquare}{5} = 1\frac{\blacksquare}{5}$$

$$8. \quad \frac{6}{4} = \frac{\blacksquare}{4} + \frac{2}{4} = \blacksquare\frac{2}{4}$$

$$9. \quad \frac{5}{2} = \frac{2}{2} + \frac{2}{2} + \frac{1}{2} = 2\frac{\blacksquare}{2}$$

$$10. \quad \frac{7}{3} = \frac{3}{3} + \frac{3}{3} + \frac{\blacksquare}{3} = 2\frac{\blacksquare}{3}$$

$$11. \quad \frac{5}{3} = 1\frac{\blacksquare}{3} \quad 12. \quad \frac{9}{6} = 1\frac{3}{6}$$

$$13. \quad \frac{10}{3} = 3\frac{\blacksquare}{3} \quad 14. \quad \frac{13}{4} = \blacksquare$$

Find the fraction.

$$15. \quad 1\frac{1}{2} = \frac{2}{2} + \frac{1}{2} = \frac{\blacksquare}{2}$$

$$16. \quad 2\frac{2}{8} = \frac{8}{8} + \frac{8}{8} + \frac{\blacksquare}{8} = \frac{\blacksquare}{8}$$

$$17. \quad 1\frac{1}{4} = \frac{\blacksquare}{4} \quad 18. \quad 1\frac{4}{5} = \frac{9}{5}$$

$$19. \quad 3\frac{3}{10} = \frac{\blacksquare}{10} \quad 20. \quad 2\frac{1}{9} = \frac{\blacksquare}{9}$$

PRACTICE

Rewrite the fraction as a mixed numeral.

- | | | | | |
|-------------------|-------------------|--------------------|------------------|--------------------|
| 1. $\frac{6}{4}$ | 2. $\frac{7}{6}$ | 3. $\frac{9}{5}$ | 4. $\frac{4}{3}$ | 5. $\frac{6}{5}$ |
| 6. $\frac{11}{8}$ | 7. $\frac{10}{4}$ | 8. $\frac{19}{10}$ | 9. $\frac{7}{2}$ | 10. $\frac{17}{4}$ |

Rewrite the mixed numeral as a fraction.

- | | | | | |
|--------------------|---------------------|---------------------|--------------------|--------------------|
| 11. $1\frac{1}{3}$ | 12. $2\frac{3}{4}$ | 13. $1\frac{3}{9}$ | 14. $1\frac{5}{6}$ | 15. $3\frac{2}{3}$ |
| 16. $1\frac{2}{7}$ | 17. $1\frac{5}{10}$ | 18. $2\frac{5}{10}$ | 19. $1\frac{7}{8}$ | 20. $4\frac{2}{5}$ |

Solve.

21. Mrs. Jensen bought 2 cakes and cut each one into 10 pieces. All of one cake and 6 pieces of the other cake were eaten. How much cake was eaten?
22. Twenty-four campers were divided into 2 sections of 12 each. At the first rest stop, 2 campers from one section were still on the trail. What part of the whole group was present?

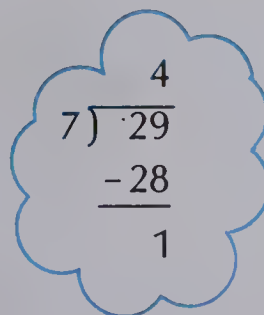
Another Way

Here is another way to change a fraction to a mixed numeral.

Divide the numerator by the denominator.

Write the remainder as a fraction.

$$\frac{29}{7}$$



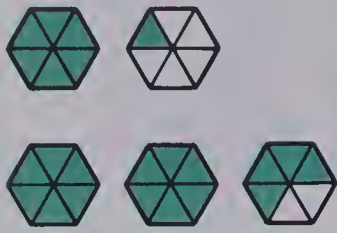
$$\begin{array}{r} 4 \\ 7 \overline{) 29} \\ \underline{-28} \\ 1 \end{array}$$

$$\frac{29}{7} = 4\frac{1}{7}$$

Use division to find the mixed numeral.

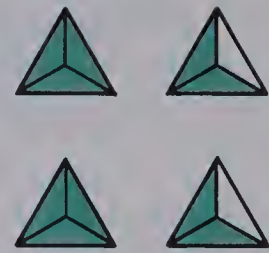
- | | | | | |
|-------------------|-------------------|--------------------|----------------------|---------------------|
| a. $\frac{33}{6}$ | b. $\frac{52}{3}$ | c. $\frac{188}{5}$ | d. $\frac{2048}{25}$ | e. $\frac{495}{50}$ |
|-------------------|-------------------|--------------------|----------------------|---------------------|

Adding with Mixed Numerals



$$\begin{array}{r} 1\frac{1}{6} \\ + 2\frac{4}{6} \\ \hline 3\frac{5}{6} \end{array}$$

$$\begin{array}{r} 1\frac{2}{3} \\ + 1\frac{2}{3} \\ \hline 2\frac{4}{3} \end{array}$$



The fraction is greater than one.

$$\frac{4}{3} = 1\frac{1}{3}$$

$$2\frac{4}{3} = 2 + 1\frac{1}{3} = 3\frac{1}{3}$$

$3\frac{1}{3}$ is a simpler form of $2\frac{4}{3}$.

EXERCISES

Add.

$$\begin{array}{r} 1. \quad \frac{3}{8} \\ + \frac{2}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 2\frac{3}{8} \\ + 1\frac{2}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \frac{2}{7} \\ + \frac{4}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 4\frac{2}{7} \\ + 3\frac{4}{7} \\ \hline \end{array}$$

Add. Write the answer as a mixed numeral.

$$\begin{array}{r} 5. \quad \frac{3}{10} \\ + \frac{8}{10} \\ \hline \frac{11}{10} = \blacksquare \end{array}$$

$$\begin{array}{r} 6. \quad \frac{3}{4} \\ + \frac{2}{4} \\ \hline \frac{5}{4} = \blacksquare \end{array}$$

$$\begin{array}{r} 7. \quad \frac{3}{5} \\ + \frac{4}{5} \\ \hline \frac{7}{5} = \blacksquare \end{array}$$

$$\begin{array}{r} 8. \quad \frac{5}{8} \\ + \frac{6}{8} \\ \hline \frac{11}{8} = \blacksquare \end{array}$$

Add. Write the answer in simplest form.

$$\begin{array}{r} 9. \quad 4\frac{3}{10} \\ + 1\frac{8}{10} \\ \hline 5\frac{11}{10} = 5 + 1\frac{1}{10} = \blacksquare \end{array}$$

$$\begin{array}{r} 10. \quad 2\frac{3}{4} \\ + 7\frac{2}{4} \\ \hline 9\frac{5}{4} = 9 + 1\frac{1}{4} = \blacksquare \end{array}$$

$$\begin{array}{r} 11. \quad 1\frac{3}{5} \\ + 3\frac{4}{5} \\ \hline 4\frac{7}{5} = \blacksquare \end{array}$$

$$12. \quad 2\frac{4}{9} + 3\frac{5}{9}$$

$$13. \quad 6\frac{5}{8} + 3\frac{5}{8}$$

$$14. \quad 7\frac{6}{10} + 8\frac{7}{10}$$

$$15. \quad 6\frac{6}{7} + 5\frac{4}{7}$$

$$16. \quad 4\frac{13}{15} + 7\frac{5}{15}$$

$$17. \quad 3\frac{5}{12} + 6\frac{7}{12}$$

PRACTICE

Add. Write the answer in simplest form.

1. $1\frac{1}{3} + 3\frac{1}{3}$
2. $2\frac{1}{4} + 3\frac{3}{4}$
3. $4\frac{3}{5} + 3\frac{1}{5}$
4. $2\frac{2}{6} + 3\frac{3}{6}$
5. $3\frac{2}{4} + 2\frac{3}{4}$
6. $2\frac{3}{5} + 1\frac{2}{5}$
7. $2\frac{3}{8} + 4\frac{5}{8}$
8. $2\frac{3}{5} + 1\frac{3}{5}$
9. $2\frac{3}{4} + 6\frac{3}{4}$
10. $4\frac{4}{6} + 3\frac{5}{6}$
11. $5\frac{2}{6} + 4\frac{4}{6}$
12. $4\frac{4}{5} + 7\frac{4}{5}$
13. $7\frac{3}{8} + 5\frac{7}{8}$
14. $9\frac{3}{10} + 2\frac{8}{10}$
15. $5\frac{6}{10} + 3\frac{9}{10}$
16. Lee swam for $1\frac{3}{4}$ h on Friday and $2\frac{1}{4}$ h on Saturday. How many hours did he swim on the two days?

REVIEW

Add.

A59

1. $\frac{1}{8} + \frac{4}{8}$

2. $\frac{3}{10} + \frac{4}{10}$

3. $\frac{2}{5} + \frac{2}{5}$

Subtract.

A60

4.
$$\begin{array}{r} \frac{3}{4} \\ - \frac{2}{4} \\ \hline \end{array}$$

5.
$$\begin{array}{r} \frac{9}{10} \\ - \frac{2}{10} \\ \hline \end{array}$$

6.
$$\begin{array}{r} \frac{8}{9} \\ - \frac{3}{9} \\ \hline \end{array}$$

7.
$$\begin{array}{r} \frac{6}{7} \\ - \frac{2}{7} \\ \hline \end{array}$$

Write the fraction as a mixed numeral.

N23

8. $\frac{7}{6}$

9. $\frac{8}{5}$

10. $\frac{9}{4}$

11. $\frac{11}{3}$

Add. Write the answer in simplest form.

A61

12.
$$\begin{array}{r} 2\frac{1}{4} \\ + 3\frac{2}{4} \\ \hline \end{array}$$

13.
$$\begin{array}{r} 6\frac{1}{2} \\ + 1\frac{1}{2} \\ \hline \end{array}$$

14.
$$\begin{array}{r} 3\frac{4}{5} \\ + 5\frac{3}{5} \\ \hline \end{array}$$

Fractions from Whole Numbers

A circus rented 2 ha of land for their show. The Big Top covered $\frac{1}{4}$ ha.

How much of the land was left for other uses?

$$\begin{array}{r} 2 \\ - \frac{1}{4} \\ \hline \end{array}$$

Regroup.

$$\begin{array}{r} 1 \cancel{2} \frac{4}{4} \\ - \frac{1}{4} \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 1 \cancel{2} \frac{4}{4} \\ - \frac{1}{4} \\ \hline 1 \frac{3}{4} \end{array}$$

There were $1\frac{3}{4}$ ha left for other uses.



EXERCISES

Regroup.

1. $1 = \frac{\blacksquare}{5}$

2. $1 = \frac{\blacksquare}{8}$

3. $1 = \frac{\blacksquare}{7}$

4. $1 = \frac{\blacksquare}{10}$

5. $3 = 2\frac{\blacksquare}{5}$

6. $4 = 3\frac{\blacksquare}{8}$

7. $6 = 5\frac{\blacksquare}{7}$

8. $5 = 4\frac{\blacksquare}{10}$

Subtract.

9.
$$\begin{array}{r} 3 \\ - \frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 2 \cancel{3} \frac{5}{5} \\ - \frac{2}{5} \\ \hline 2 \frac{\blacksquare}{5} \end{array}$$

10.
$$\begin{array}{r} 7 \\ - \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 6 \cancel{7} \frac{8}{8} \\ - \frac{3}{8} \\ \hline 6 \frac{\blacksquare}{8} \end{array}$$

11.
$$\begin{array}{r} 5 \\ - \frac{1}{2} \\ \hline \end{array}$$

12.
$$\begin{array}{r} 6 \\ - \frac{3}{4} \\ \hline \end{array}$$

13.
$$\begin{array}{r} 4 \\ - \frac{2}{3} \\ \hline \end{array}$$

14.
$$\begin{array}{r} 8 \\ - \frac{3}{10} \\ \hline \end{array}$$

15. $7 - \frac{4}{9}$

16. $9 - \frac{4}{7}$

17. $2 - \frac{5}{8}$

18. $7 - \frac{3}{6}$

19. $3 - \frac{5}{6}$

20. $8 - \frac{1}{4}$

21. $6 - \frac{7}{10}$

22. $5 - \frac{5}{9}$

PRACTICE

Subtract.

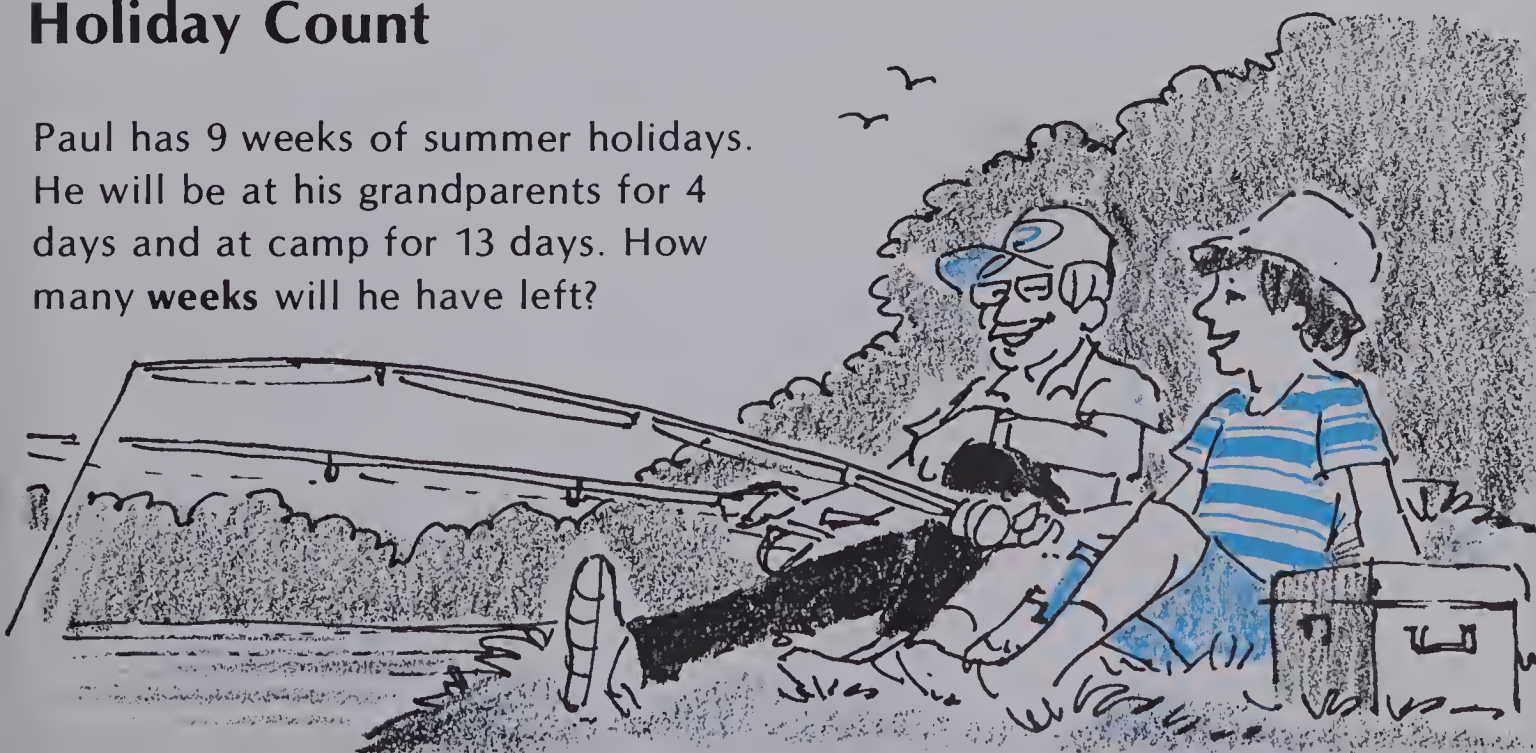
1. $4 - \frac{1}{8}$
2. $5 - \frac{1}{2}$
3. $3 - \frac{2}{5}$
4. $7 - \frac{2}{3}$
5. $8 - \frac{3}{5}$
6. $6 - \frac{7}{8}$
7. $8 - \frac{1}{6}$
8. $9 - \frac{3}{4}$
9. $12 - \frac{4}{7}$
10. $11 - \frac{3}{10}$
11. $7 - \frac{5}{16}$
12. $5 - \frac{1}{9}$
13. $9 - \frac{1}{10}$
14. $6 - \frac{5}{12}$
15. $5 - \frac{7}{10}$
16. $7 - \frac{7}{9}$
17. $8 - \frac{5}{6}$
18. $12 - \frac{3}{4}$
19. $10 - \frac{5}{12}$
20. $14 - \frac{3}{10}$

Solve.

21. The Sagars set out on a 7-day holiday. They spent $\frac{1}{2}$ day driving to a provincial park.
How much of their holiday was left?
22. The Sagars planned to spend 2 days at a provincial park, but it took $\frac{1}{6}$ of a day to get a camp site. How much of the 2 days was left?

Holiday Count

Paul has 9 weeks of summer holidays. He will be at his grandparents for 4 days and at camp for 13 days. How many **weeks** will he have left?



Subtracting with Mixed Numerals

During the summer, Rachel filled $3\frac{1}{4}$ pages of her stamp album. Then she gave away the stamps on $\frac{3}{4}$ of a page. How many pages of stamps did she have left?



$$\begin{array}{r} 3\frac{1}{4} \\ - \quad \frac{3}{4} \\ \hline \end{array}$$

Regroup.

$$\begin{array}{r} 2\frac{5}{4} \\ \cancel{3}\frac{\cancel{1}}{4} \\ - \quad \frac{3}{4} \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 2\frac{5}{4} \\ \cancel{3}\frac{\cancel{1}}{4} \\ - \quad \frac{3}{4} \\ \hline 2\frac{2}{4} \end{array}$$

Rachel had $2\frac{2}{4}$ pages of stamps left.

Can you think of a simpler way to say $\frac{2}{4}$?

EXERCISES

Subtract.

1. $\begin{array}{r} 2\frac{5}{6} \\ - \quad \frac{4}{6} \\ \hline \end{array}$

2. $\begin{array}{r} 7\frac{7}{8} \\ - \quad \frac{5}{8} \\ \hline \end{array}$

3. $\begin{array}{r} 5\frac{3}{4} \\ - \quad \frac{2}{4} \\ \hline \end{array}$

4. $\begin{array}{r} 9\frac{5}{10} \\ - \quad \frac{2}{10} \\ \hline \end{array}$

Subtract. Regroup if necessary.

5. $\begin{array}{r} 2\frac{4}{6} \\ - 1\frac{5}{6} \\ \hline \end{array}$

6. $\begin{array}{r} 7\frac{1}{8} \\ - 2\frac{7}{8} \\ \hline \end{array}$

7. $\begin{array}{r} 5\frac{1}{5} \\ - 3\frac{4}{5} \\ \hline \end{array}$

8. $\begin{array}{r} 8\frac{3}{9} \\ - 3\frac{5}{9} \\ \hline \end{array}$

9. $\begin{array}{r} 4 \\ - 2\frac{1}{4} \\ \hline \end{array}$

10. $\begin{array}{r} 7\frac{1}{4} \\ - \quad \frac{2}{4} \\ \hline \end{array}$

11. $\begin{array}{r} 4\frac{4}{10} \\ - 1\frac{2}{10} \\ \hline \end{array}$

12. $\begin{array}{r} 5\frac{1}{6} \\ - 2\frac{2}{6} \\ \hline \end{array}$

13. $8 - 3\frac{3}{5}$

14. $6\frac{2}{5} - \frac{4}{5}$

15. $5\frac{1}{8} - 2\frac{2}{8}$

16. $9\frac{2}{7} - 4\frac{5}{7}$

17. $9\frac{5}{10} - 3\frac{7}{10}$

18. $8\frac{3}{7} - 7\frac{5}{7}$

19. $7\frac{4}{6} - 3\frac{1}{6}$

20. $5\frac{7}{9} - 2\frac{3}{9}$

PRACTICE

Subtract.

$$\begin{array}{r} 1. \quad 4\frac{3}{4} \\ - 3\frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 8\frac{5}{8} \\ - \quad \frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 7\frac{4}{5} \\ - 2\frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 9\frac{1}{8} \\ - 7\frac{5}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 8\frac{5}{6} \\ - \quad \frac{3}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 2\frac{2}{7} \\ - \quad \frac{5}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 9\frac{2}{3} \\ - 1\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 7\frac{2}{5} \\ - 3\frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 7 \\ - 5\frac{1}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 8 \\ - 4\frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 4\frac{3}{10} \\ - 1\frac{6}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 6\frac{5}{12} \\ - 2\frac{7}{12} \\ \hline \end{array}$$

Solve.

13. The estimated cost of building a theme park was $12\frac{3}{8}$ million dollars. The actual cost was $18\frac{7}{8}$ million dollars. How much more was the actual cost?

USING THE CALCULATOR

Fractions can be added or subtracted on a calculator by changing them to decimals first. For each fraction, divide the numerator by the denominator. Then add or subtract the decimals.

$$\begin{array}{r} \frac{3}{8} \\ + \frac{7}{8} \\ \hline \end{array}$$

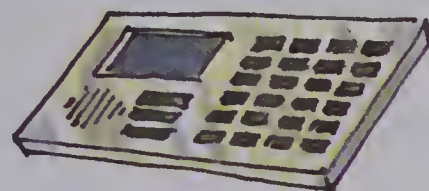
$$3 \div 8 = 0.375$$

$$7 \div 8 = 0.875$$

$$0.375$$

$$+ 0.875$$

$$\hline 1.250$$



Add or subtract these fractions. Use a calculator.

a.
$$\begin{array}{r} \frac{3}{4} \\ + \frac{3}{4} \\ \hline \end{array}$$

b.
$$\begin{array}{r} \frac{3}{5} \\ + \frac{4}{5} \\ \hline \end{array}$$

c.
$$\begin{array}{r} \frac{14}{16} \\ - \frac{11}{16} \\ \hline \end{array}$$

d.
$$\begin{array}{r} \frac{42}{35} \\ + \frac{49}{35} \\ \hline \end{array}$$

e.
$$\begin{array}{r} \frac{43}{8} \\ - \frac{27}{8} \\ \hline \end{array}$$

Probability

John, Mario, and Eric all wanted to go to the beach with Stefanie. She decided to put their names in a hat and draw one to see who she would take.

What were John's chances of getting picked?

There are 3 names. One gets chosen.

The **probability** (chance) of being chosen is 1 in 3 or $\frac{1}{3}$.



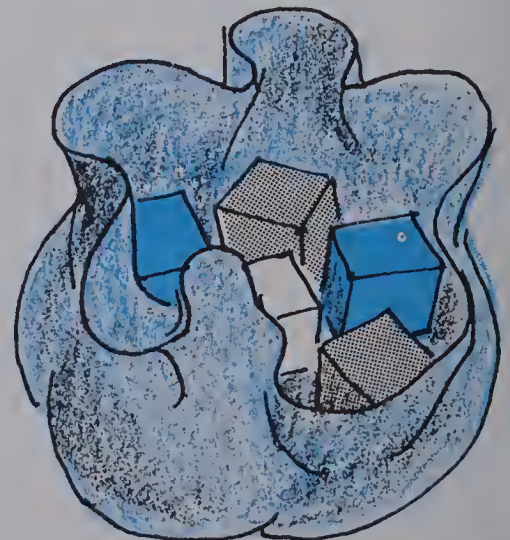
EXERCISES

There are six faces on a die. Each face has a numeral from one to six.

1. What is the probability of rolling a 1?
2. What is the probability of rolling a 5?
3. What is the probability of rolling an even number?
4. What is the probability of rolling an odd number?
5. What is the probability of rolling a number less than 6?

There are 2 blue blocks, 1 white block, and 2 gray blocks in a bag. You pick a block without looking. What is the probability that the block will be:

- | | |
|------------------|---------------------------|
| 6. white | 7. gray |
| 8. blue or white | 9. gray or white |
| 10. blue or gray | 11. blue, white, or gray? |



PRACTICE

Suppose you shuffled these cards and then placed them face down.



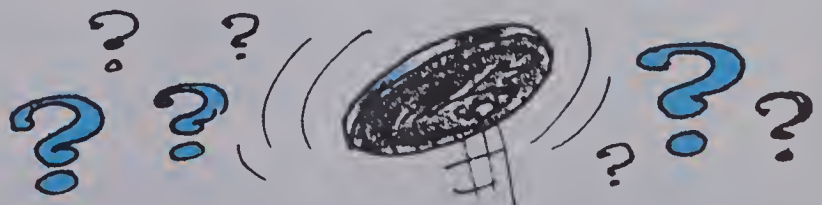
The top card is turned over. What is the probability that it is:

1. a 3
2. a 6 or a 7
3. a numeral greater than 4
4. an odd numeral
5. a numeral less than 6
6. an even numeral?
7. Suppose a penny is flipped 50 times.
How many heads do you think there would be?
8. If you flip a penny, what is the probability of getting a head?
9. If you flip a penny, what is the probability of getting neither a head nor a tail?
10. You have 3 red marbles and 2 blue marbles in your pocket.
If you take out one marble, what is the probability that the marble will be:
 - a. blue
 - b. red
 - c. either red or blue?
11. In a Grade 5 class, there are 16 girls and 14 boys.
What is the probability that a student, chosen at random, will be a girl?

Flipped Out

Flip a penny 50 times. Record the number of heads and the number of tails. Record the results.

Heads	
Tails	



Problem Solving



The land for a theme park cost $1\frac{1}{4}$ million dollars. It cost $26\frac{3}{4}$ million dollars to construct the buildings and another $\frac{3}{4}$ million dollars to landscape the park. What was the total cost?



$1\frac{1}{4}$ million dollars for land
 $26\frac{3}{4}$ million dollars for buildings
 $\frac{3}{4}$ million dollars for landscaping

Add.

$$\begin{array}{r}
 1\frac{1}{4} \\
 26\frac{3}{4} \\
 + \quad \frac{3}{4} \\
 \hline
 27\frac{7}{4} = 27 + 1\frac{3}{4} = 28\frac{3}{4}
 \end{array}$$

The total cost was $28\frac{3}{4}$ million dollars.



EXERCISES

Solve.

1. Tony bought 2 dozen buns for a picnic. After the picnic, $\frac{1}{4}$ dozen buns were left over. How many buns were eaten?
2. Miriam put 24.5 L of gas in the tank of her car. Then she put in 0.7L more. How much gas did she put in the car?
3. Carla worked as a mother's helper for 2 weeks in the summer. She had $1\frac{1}{2}$ days off. How many days did she work?
4. Tim spent $1\frac{1}{3}$ days cleaning Mrs. Zaff's yard, $\frac{2}{3}$ day cleaning Schutter's basement, and $\frac{1}{3}$ day mowing the Sharp's lawn. How much time did these three jobs take?

PRACTICE

Solve.

1. What is the total area covered by the Great Lakes?

	Area (1000 km ²)
Lake Superior	82.1
Lake Huron	59.57
Lake Michigan	57.76
Lake Erie	25.68
Lake Ontario	19.0

2. The average July temperature for Gander is 16.5°C and for Charlottetown 18.4°C. What is the difference in the average July temperatures for these two places?
3. Ted ate $\frac{5}{8}$ of his candy bar and Ed ate $\frac{3}{8}$ of his. They gave the rest to Anders. How much did Anders get altogether?
4. The Connellys spent $2\frac{2}{3}$ days of their holiday in Cape Breton and $1\frac{1}{3}$ days in Halifax. How many days was that?

REVIEW

Subtract.

A62

1.
$$\begin{array}{r} 6 \\ - \frac{3}{8} \\ \hline \end{array}$$

2.
$$\begin{array}{r} 1 \\ - \frac{3}{4} \\ \hline \end{array}$$

3.
$$\begin{array}{r} 5 \\ - \frac{7}{10} \\ \hline \end{array}$$

4.
$$\begin{array}{r} 3 \\ - \frac{3}{5} \\ \hline \end{array}$$

A63

5.
$$\begin{array}{r} 4 \\ - 1\frac{1}{5} \\ \hline \end{array}$$

6.
$$\begin{array}{r} 8\frac{1}{6} \\ - \frac{4}{6} \\ \hline \end{array}$$

7.
$$\begin{array}{r} 9\frac{4}{7} \\ - 3\frac{2}{7} \\ \hline \end{array}$$

8.
$$\begin{array}{r} 8\frac{7}{9} \\ - 5\frac{8}{9} \\ \hline \end{array}$$

Solve.

A64

A bag has 3 red marbles, 2 blue marbles, and 1 green marble.

If you took one out, what is the probability of getting:

9. a green marble? 10. a red marble?
11. a blue or a red marble?

TEST

UNIT 14

Add or subtract.

$$\begin{array}{r} 1. \quad \frac{4}{6} \\ + \frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \frac{2}{10} \\ + \frac{5}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \frac{5}{100} \\ + \frac{4}{100} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \frac{1}{5} \\ + \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad \frac{6}{12} \\ + \frac{4}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \frac{7}{9} \\ - \frac{2}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \frac{10}{12} \\ - \frac{3}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad \frac{6}{8} \\ - \frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad \frac{11}{20} \\ - \frac{3}{20} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad \frac{14}{15} \\ - \frac{8}{15} \\ \hline \end{array}$$

Write the mixed numeral.

$$11. \quad \frac{6}{5}$$

$$12. \quad \frac{9}{7}$$

$$13. \quad \frac{11}{8}$$

$$14. \quad \frac{10}{3}$$

$$15. \quad \frac{16}{5}$$

Write the fraction.

$$16. \quad 1\frac{1}{2}$$

$$17. \quad 1\frac{3}{4}$$

$$18. \quad 1\frac{3}{6}$$

$$19. \quad 2\frac{3}{10}$$

$$20. \quad 4\frac{1}{5}$$

Add.

$$\begin{array}{r} 21. \quad 5\frac{3}{5} \\ + 2\frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 1\frac{3}{8} \\ + 3\frac{4}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 7\frac{6}{10} \\ + 6\frac{5}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 4\frac{3}{4} \\ + 1\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 6\frac{4}{9} \\ + 3\frac{7}{9} \\ \hline \end{array}$$

Subtract.

$$\begin{array}{r} 26. \quad 7 \\ - \frac{7}{16} \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 4 \\ - \frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 3 \\ - \frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 29. \quad 5 \\ - \frac{7}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 30. \quad 6 \\ - \frac{6}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 31. \quad 8 \\ - 2\frac{2}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 32. \quad 6\frac{2}{5} \\ - \frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 33. \quad 8\frac{3}{10} \\ - 3\frac{1}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 34. \quad 9\frac{2}{6} \\ - 7\frac{3}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 35. \quad 7\frac{4}{7} \\ - 2\frac{6}{7} \\ \hline \end{array}$$

Solve.

You are in line to buy a ticket. There are three ticket sellers: A, B, and C. What is the probability you will get:

36. seller A

37. either seller B or C?

NUMBER THEORY

Find the LCM (least common multiple).

1. 6 and 9
2. 8 and 10
3. 7 and 11
4. 3 and 12
5. 13 and 5
6. 12 and 18
7. Which number is divisible by 9?
a. 2276 b. 1505 c. 1557 d. 2783
8. Which number is divisible by both 2 and 5?
a. 2388 b. 2005 c. 2430 d. 6052
9. Write the first six prime numbers.
10. Write the first six composite numbers.

Find the GCF (greatest common factor).

11. 8 and 16
12. 6 and 9
13. 12 and 15
14. 4 and 5
15. 10 and 25
16. 12 and 18

Evaluate.

17. $46 - (4 + 2)$
18. $6 \times 13 - 6$
19. $8 + 4 \div 2$
20. $36 \div (18 - 9)$
21. $(4 + 6) \times 89$
22. $(3 + 6) \times 8 - 2$
23. $75 + 97 + 25$
24. $2 \times 89 \times 50$
25. 12×21
26. 4×99
27. $123 + 259 - 23$
28. 101×28

Write the standard numeral.

29. IX
30. CCXX
31. MXC

Cumulative Test

UNITS 1-4

Write the place value of the 3.

1. 12 358 604

2. 309 275 641

3. 823 560 491

Write the numbers in order from smallest to largest.

4. 63 249 850, 63 250 967, 63 249 851, 62 349 850

Round to the nearest thousand.

5. 34 250

6. 169 049

7. 80 555

8. 119 862

Write as a decimal.

9. $\frac{7}{10}$

10. $\frac{14}{100}$

11. $\frac{3}{100}$

12. $\frac{10}{10}$

Copy and complete. Use $<$ or $>$.

13. 12.6 \bullet 12.06

14. 82.45 \bullet 82.54

15. 41.88 \bullet 41.8

Add.

16.
$$\begin{array}{r} 16 \\ + 32 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 76 \\ + 25 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 596 \\ + 87 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 440 \\ + 892 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 786 \\ + 2045 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 658 \\ 209 \\ + 31 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 184 \\ 270 \\ + 932 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 68\,792 \\ + 45\,308 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 7.4 \\ + 1.8 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 89.01 \\ + 39.45 \\ \hline \end{array}$$

Subtract.

26.
$$\begin{array}{r} 56 \\ - 23 \\ \hline \end{array}$$

27.
$$\begin{array}{r} 84 \\ - 39 \\ \hline \end{array}$$

28.
$$\begin{array}{r} 193 \\ - 76 \\ \hline \end{array}$$

29.
$$\begin{array}{r} 650 \\ - 281 \\ \hline \end{array}$$

30.
$$\begin{array}{r} 3656 \\ - 1778 \\ \hline \end{array}$$

31.
$$\begin{array}{r} 7003 \\ - 415 \\ \hline \end{array}$$

32.
$$\begin{array}{r} 9200 \\ - 6423 \\ \hline \end{array}$$

33.
$$\begin{array}{r} 8645 \\ - 3956 \\ \hline \end{array}$$

34.
$$\begin{array}{r} 7.0 \\ - 3.6 \\ \hline \end{array}$$

35.
$$\begin{array}{r} 51.2 \\ - 16.9 \\ \hline \end{array}$$

Multiply.

36.
$$\begin{array}{r} 20 \\ \times 7 \\ \hline \end{array}$$

37.
$$\begin{array}{r} 76 \\ \times 5 \\ \hline \end{array}$$

38.
$$\begin{array}{r} 43 \\ \times 9 \\ \hline \end{array}$$

39.
$$\begin{array}{r} 700 \\ \times 6 \\ \hline \end{array}$$

40.
$$\begin{array}{r} 3000 \\ \times 4 \\ \hline \end{array}$$

41.
$$\begin{array}{r} 206 \\ \times 8 \\ \hline \end{array}$$

42.
$$\begin{array}{r} 7284 \\ \times 5 \\ \hline \end{array}$$

43.
$$\begin{array}{r} 1504 \\ \times 8 \\ \hline \end{array}$$

44.
$$\begin{array}{r} 61 \\ \times 40 \\ \hline \end{array}$$

45.
$$\begin{array}{r} 37 \\ \times 20 \\ \hline \end{array}$$

46.
$$\begin{array}{r} 76 \\ \times 18 \\ \hline \end{array}$$

47.
$$\begin{array}{r} 54 \\ \times 38 \\ \hline \end{array}$$

48.
$$\begin{array}{r} \$1.67 \\ \times 5 \\ \hline \end{array}$$

49.
$$\begin{array}{r} 34.21 \\ \times 8 \\ \hline \end{array}$$

50.
$$\begin{array}{r} \$0.55 \\ \times 34 \\ \hline \end{array}$$

51.
$$\begin{array}{r} 68.2 \\ \times 7 \\ \hline \end{array}$$

Divide.

52.
$$4 \overline{)37}$$

53.
$$9 \overline{)85}$$

54.
$$6 \overline{)306}$$

55.
$$4 \overline{)247}$$

56.
$$7 \overline{)92}$$

57.
$$3 \overline{)80}$$

58.
$$8 \overline{)453}$$

59.
$$5 \overline{)372}$$

60.
$$4 \overline{)608}$$

61.
$$8 \overline{)923}$$

62.
$$3 \overline{)2145}$$

63.
$$9 \overline{)5699}$$

64.
$$2 \overline{)3504}$$

65.
$$7 \overline{)7038}$$

66.
$$6 \overline{)\$19.06}$$

67.
$$2 \overline{)\$49.46}$$

Solve.

68. John went to the store to buy groceries. He took a \$5 bill. The groceries cost \$2.89. How much change did John get?
69. Sherri lives 16.7 km from Montroy. Bev lives 7.8 km closer to Montroy than Sherri. How far does Bev live from Montroy?
70. During the day the temperature rose 8°C from a low of 16°C. What was the high temperature for the day?
71. If one box of crackers costs \$0.79, how much do 3 boxes cost?
72. Half a dozen doughnuts cost \$2.70. What is the cost of one doughnut?

Cumulative Test

UNITS 5-7

Copy and complete.

1. $4 \text{ cm} = \blacksquare \text{ mm}$

2. $1 \text{ m} = \blacksquare \text{ cm}$

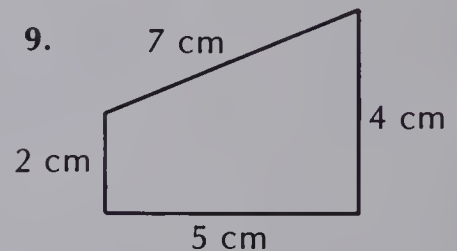
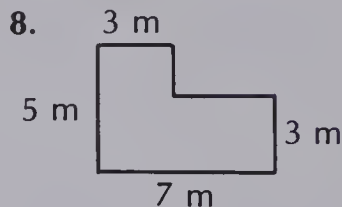
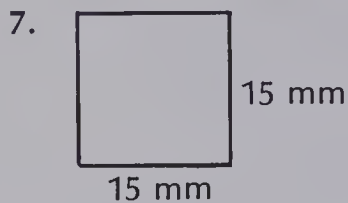
3. $3000 \text{ mm} = \blacksquare \text{ m}$

4. $1 \text{ km} = \blacksquare \text{ m}$

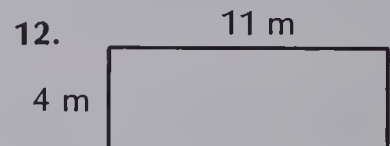
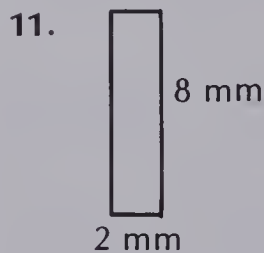
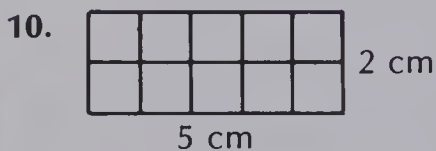
5. $20 \text{ mm} = \blacksquare \text{ cm}$

6. $800 \text{ cm} = \blacksquare \text{ m}$

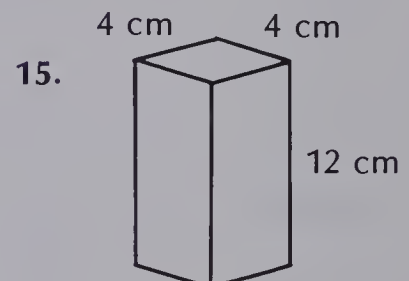
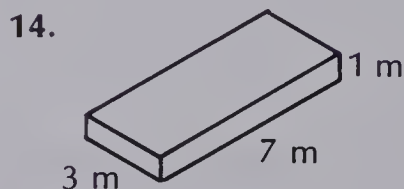
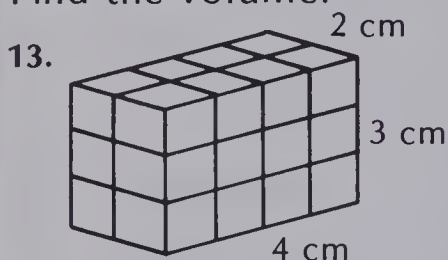
Find the perimeter.



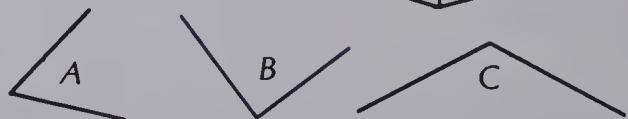
Find the area.



Find the volume.



16. Which angle is a right angle?



17. Estimate the product of 189 and 23.

18. Estimate the product of 412 and 31.

Multiply.

19.
$$\begin{array}{r} 620 \\ \times 34 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 441 \\ \times 80 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 500 \\ \times 90 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 203 \\ \times 64 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 128 \\ \times 95 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 968 \\ \times 74 \\ \hline \end{array}$$

25.
$$\begin{array}{r} \$5.62 \\ \times 34 \\ \hline \end{array}$$

26.
$$\begin{array}{r} \$7.09 \\ \times 83 \\ \hline \end{array}$$

Divide.

27. $40 \overline{)95}$

28. $15 \overline{)75}$

29. $51 \overline{)96}$

30. $30 \overline{)792}$

31. $70 \overline{)902}$

32. $14 \overline{)603}$

33. $35 \overline{)811}$

34. $68 \overline{)427}$

35. $50 \overline{)4932}$

36. $16 \overline{)592}$

37. $37 \overline{)603}$

38. $65 \overline{)5940}$

Multiply.

39. $\frac{1}{3} \times 9$

40. $\frac{1}{2} \times 10$

41. $\frac{2}{5} \times 5$

42. $\frac{3}{4} \times 12$

Write the ratio.

43. 5 people to each car

44. 7 books for 3 children

Write equivalent fractions.

45. $\frac{2}{3} = \frac{8}{\blacksquare} = \frac{16}{\blacksquare}$

46. $\frac{24}{36} = \frac{\blacksquare}{6} = \frac{\blacksquare}{3}$

47. $\frac{4}{20} = \frac{2}{\blacksquare} = \frac{1}{\blacksquare}$

Find the missing term.

48. $\frac{3}{5} = \frac{\blacksquare}{20}$

49. $\frac{2}{\blacksquare} = \frac{8}{16}$

50. $\frac{4}{5} = \frac{80}{\blacksquare}$

51. $\frac{\blacksquare}{3} = \frac{6}{18}$

Write as a decimal.

52. $\frac{81}{100}$

53. $\frac{4}{5}$

54. $\frac{3}{50}$

55. $\frac{1}{4}$

Compare the fractions. Use $>$ or $<$.

56. $\frac{3}{6} \bullet \frac{5}{6}$

57. $\frac{1}{2} \bullet \frac{1}{4}$

58. $\frac{2}{5} \bullet \frac{3}{10}$

59. $\frac{2}{3} \bullet \frac{7}{12}$

Solve.

60. Delores ran 1500 m. How much more than 1 km did she run?

61. The area of a rectangle is 672 cm^2 . One side is 16 cm long. How long is the other side?

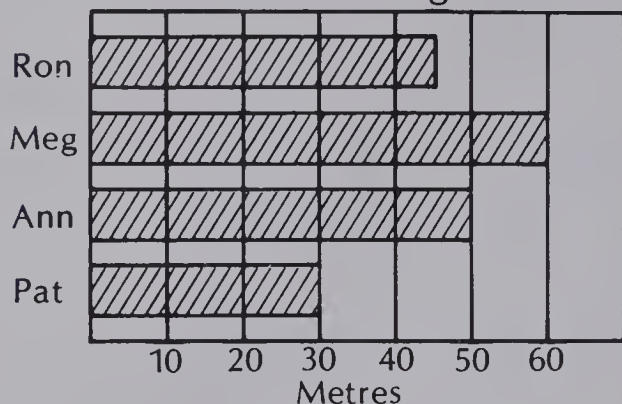
Does this problem have enough information?

62. May baked 60 cookies for her party. $\frac{1}{2}$ of the children did not eat cookies. How many children ate cookies?

Cumulative Test

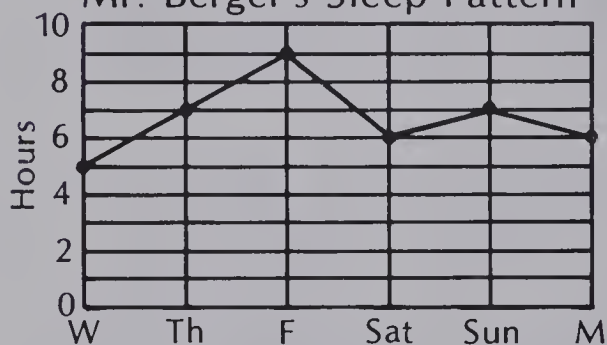
UNITS 8-10

Students' Swimming Distances

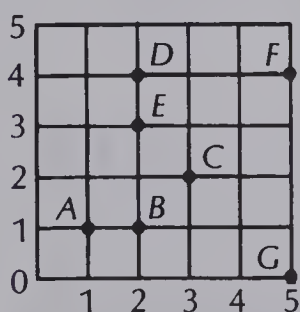


1. What is the longest distance any of the students can swim?
2. What is the shortest distance a student can swim?
3. How far can Ron swim?

Mr. Berger's Sleep Pattern



4. On which day did Mr. Berger get the most sleep?
5. How much sleep did he get on Sunday?
6. On what day did he get the same amount of sleep as on Thursday?



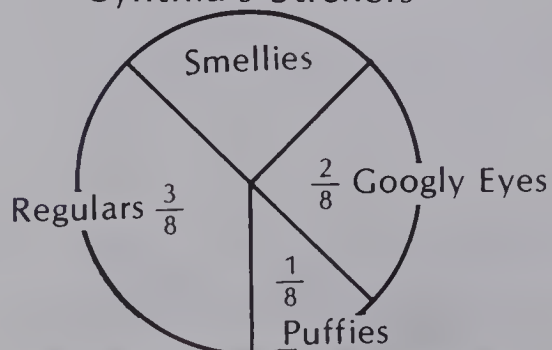
What letter is at

7. (3, 2) 8. (5, 4) 9. (1, 1)?

What are the coordinates of

10. D 11. B 12. G?

Cynthia's Stickers



13. What fraction of Cynthia's stickers are puffies?
14. Does she have more regular stickers or more googly-eye stickers?
15. What fraction of her stickers are smellies?

Multiply.

16.
$$\begin{array}{r} 0.09 \\ \times 6 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 0.35 \\ \times 8 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 1.17 \\ \times 5 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 4.08 \\ \times 4 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 9.32 \\ \times 7 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 54 \\ \times 0.2 \\ \hline \end{array}$$

22.
$$\begin{array}{r} 0.8 \\ \times 0.4 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 6.7 \\ \times 0.3 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 2.9 \\ \times 3.6 \\ \hline \end{array}$$

25.
$$\begin{array}{r} 8.1 \\ \times 7.1 \\ \hline \end{array}$$

Divide.

26. $3 \overline{)9.3}$

27. $4 \overline{)9.2}$

28. $5 \overline{)3.5}$

29. $7 \overline{)7.84}$

30. $6 \overline{)19.86}$

Write as a decimal.

31. $\frac{1}{4}$

32. $\frac{1}{5}$

33. $\frac{4}{5}$

34. $\frac{3}{10}$

35. $\frac{9}{20}$

Match.

36. line segment

37. ray

38. closed curve

39. pentagon

40. hexagon

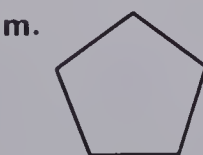
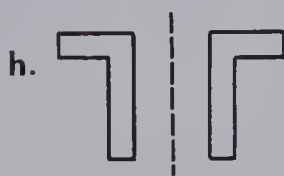
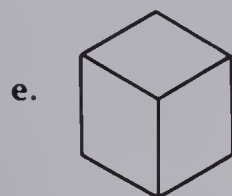
41. slide

42. a figure that is symmetrical

43. flip

44. $\frac{1}{4}$ turn

45. congruent triangles



Cumulative Test

UNITS 11-14

Round to the nearest hundredth.

1. 0.273 2. 4.185 3. 3.097 4. 8.998

Compute.

5. $\begin{array}{r} 45.327 \\ + 1.908 \\ \hline \end{array}$ 6. $\begin{array}{r} 9.184 \\ - 2.419 \\ \hline \end{array}$ 7. $\begin{array}{r} 0.314 \\ \times 5 \\ \hline \end{array}$ 8. $\begin{array}{r} 1.728 \\ \times 3 \\ \hline \end{array}$

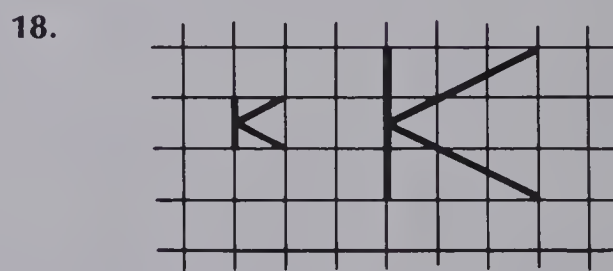
Write as a percent.

9. 0.17 10. $\frac{125}{100}$ 11. $\frac{31}{50}$ 12. 2.30

Add or subtract.

13. $\begin{array}{r} \$2182.67 \\ + 908.43 \\ \hline \end{array}$ 14. $\begin{array}{r} \$7100.50 \\ - 5605.25 \\ \hline \end{array}$ 15. $\begin{array}{r} 8 \text{ h } 10 \text{ min} \\ - 2 \text{ h } 30 \text{ min} \\ \hline \end{array}$ 16. $\begin{array}{r} 12:30 \\ + 02:45 \\ \hline \end{array}$

Are the two figures similar?



Solve.

19. There are 24 stamps per page. How many stamps are there in 12 pages?
20. If 8 stickers cost \$1.49, how much will 16 stickers cost?
21. If a car travels at 80 km/h, how far will it go in 3 h?
22. On five different days, Joe earned \$3.50, \$5.00, \$4.25, \$2.50, and \$3.00. How much did he average per day?
23. When it is 04:00 in Halifax, what time is it in Ottawa?

24. Name the multiples of 12 between 50 and 100.
25. Find the LCM of 4 and 5.
26. Which number is divisible by 9?
 a. 24 b. 32 c. 101 d. 108 e. 206
27. Name the factors of 24.
28. Which number is a prime number?
 a. 32 b. 16 c. 27 d. 39 e. 13
29. Find the GCF of 8 and 12.

Compute.

30. $9 - (4 \times 2)$ 31. $9 - 4 \times 2$
32. $3 \times (30 \div 5)$ 33. $(6 \times 50) + (6 \times 7)$

Write the mixed numeral.

34. $\frac{7}{5}$ 35. $\frac{15}{10}$ 36. $\frac{17}{8}$ 37. $\frac{7}{4}$

Add or subtract.

38.
$$\begin{array}{r} \frac{3}{10} \\ + \frac{4}{10} \\ \hline \end{array}$$
 39.
$$\begin{array}{r} \frac{6}{8} \\ - \frac{1}{8} \\ \hline \end{array}$$
 40.
$$\begin{array}{r} 5\frac{1}{4} \\ + 2\frac{1}{4} \\ \hline \end{array}$$
 41.
$$\begin{array}{r} 3\frac{3}{10} \\ + 1\frac{8}{10} \\ \hline \end{array}$$
42.
$$\begin{array}{r} 8 \\ - \frac{3}{4} \\ \hline \end{array}$$
 43.
$$\begin{array}{r} 7 \\ - 1\frac{2}{5} \\ \hline \end{array}$$
 44.
$$\begin{array}{r} 6\frac{1}{8} \\ - \frac{3}{8} \\ \hline \end{array}$$
 45.
$$\begin{array}{r} 8\frac{2}{6} \\ - 3\frac{5}{6} \\ \hline \end{array}$$

Solve.

46. There are 2 red marbles, 1 blue marble, and 3 green marbles in a bag. You pull out one. What is the probability of picking
 a. a blue one? b. a red or a green one?

Addition

Add.

$$\begin{array}{r} 1. \quad 0 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 24 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 36 \\ + 45 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 17 \\ + 58 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 534 \\ + 70 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 842 \\ + 109 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 375 \\ + 626 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 9 \\ 4 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 16 \\ 25 \\ + 30 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 93 \\ 50 \\ + 48 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 6798 \\ + 5385 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 46\,575 \\ + 1\,984 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 14\,262 \\ + 89\,751 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 73\,625 \\ 8\,479 \\ + 29\,362 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 8.9 \\ + 4.2 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 56.7 \\ + 37.5 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 33.4 \\ + 16.81 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 28.16 \\ + 13.59 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 45.062 \\ + 61.839 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 835.104 \\ + 196.507 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad \$6.79 \\ + 3.21 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad \$253.84 \\ + 476.29 \\ \hline \end{array}$$

Subtraction

Subtract.

$$\begin{array}{r} 1. \quad 6 \\ - 0 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 74 \\ - 6 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 91 \\ - 32 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 80 \\ - 39 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 760 \\ - 41 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 384 \\ - 197 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 500 \\ - 321 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 4621 \\ - 2358 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 6050 \\ - 1394 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 9000 \\ - 5673 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 3.5 \\ - 2.8 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 36.3 \\ - 16.4 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 55.63 \\ - 28.49 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 20.03 \\ - 2.46 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 53.914 \\ - 26.958 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 800 \\ - 321.459 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad \$64.35 \\ - 23.58 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad \$503.26 \\ - 214.98 \\ \hline \end{array}$$

Multiplication

Multiply.

$$\begin{array}{r} 1. \quad 8 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 50 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 70 \\ \times 8 \\ \hline \end{array}$$

$$4. \quad 6 \times 0$$

$$5. \quad 9 \times 5$$

$$\begin{array}{r} 6. \quad 65 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 76 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 400 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 800 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 6000 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 876 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 150 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 7171 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 1493 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 4080 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 34 \\ \times 20 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 69 \\ \times 80 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 83 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 60 \\ \times 15 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 26 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 82 \\ \times 55 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 12.65 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad \$0.89 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 14.9 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 25. \quad 9.3 \\ \times 26 \\ \hline \end{array}$$

$$\begin{array}{r} 26. \quad 728 \\ \times 50 \\ \hline \end{array}$$

$$\begin{array}{r} 27. \quad 634 \\ \times 80 \\ \hline \end{array}$$

$$\begin{array}{r} 28. \quad 139 \\ \times 25 \\ \hline \end{array}$$

$$\begin{array}{r} 29. \quad 204 \\ \times 37 \\ \hline \end{array}$$

$$\begin{array}{r} 30. \quad 351 \\ \times 96 \\ \hline \end{array}$$

$$\begin{array}{r} 31. \quad \$3.17 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 32. \quad \$9.67 \\ \times 42 \\ \hline \end{array}$$

$$\begin{array}{r} 33. \quad 0.4 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 34. \quad 23.7 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 35. \quad 6.9 \\ \times 35 \\ \hline \end{array}$$

$$\begin{array}{r} 36. \quad 0.43 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 37. \quad 0.91 \\ \times 28 \\ \hline \end{array}$$

$$\begin{array}{r} 38. \quad 7.06 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 39. \quad 8.51 \\ \times 93 \\ \hline \end{array}$$

$$\begin{array}{r} 40. \quad 86 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 41. \quad 0.5 \\ \times 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 42. \quad 0.6 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 43. \quad 3.7 \\ \times 0.9 \\ \hline \end{array}$$

$$\begin{array}{r} 44. \quad 74.5 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 45. \quad 39.1 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 46. \quad 81.5 \\ \times 4.6 \\ \hline \end{array}$$

$$\begin{array}{r} 47. \quad 36.7 \\ \times 9.2 \\ \hline \end{array}$$

$$\begin{array}{r} 48. \quad 0.115 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 49. \quad 0.604 \\ \times 53 \\ \hline \end{array}$$

$$\begin{array}{r} 50. \quad 0.893 \\ \times 67 \\ \hline \end{array}$$

Division

Divide.

- | | | | |
|----------------------------|----------------------------|----------------------------|--------------------------|
| 1. $8 \div 4$ | 2. $0 \div 9$ | 3. $6 \overline{)48}$ | 4. $9 \overline{)80}$ |
| 5. $4 \overline{)31}$ | 6. $5 \overline{)50}$ | 7. $8 \overline{)320}$ | 8. $6 \overline{)5400}$ |
| 9. $5 \overline{)85}$ | 10. $4 \overline{)72}$ | 11. $7 \overline{)86}$ | 12. $3 \overline{)89}$ |
| 13. $5 \overline{)426}$ | 14. $2 \overline{)507}$ | 15. $8 \overline{)444}$ | 16. $3 \overline{)816}$ |
| 17. $6 \overline{)600}$ | 18. $7 \overline{)905}$ | 19. $8 \overline{)5688}$ | 20. $4 \overline{)6482}$ |
| 21. $9 \overline{)6945}$ | 22. $2 \overline{)8247}$ | 23. $5 \overline{)6090}$ | 24. $7 \overline{)9231}$ |
| 25. $8 \overline{)\$3.88}$ | 26. $6 \overline{)\$8.15}$ | 27. $3 \overline{)\$9.02}$ | 28. $2 \overline{)60}$ |
| 29. $5 \overline{)536}$ | 30. $9 \overline{)6357}$ | 31. $6 \overline{)7206}$ | 32. $8 \overline{)6479}$ |

Division

- | | | | |
|---------------------------|---------------------------|---------------------------|---------------------------|
| 1. $20 \overline{)75}$ | 2. $60 \overline{)900}$ | 3. $80 \overline{)724}$ | 4. $30 \overline{)516}$ |
| 5. $31 \overline{)85}$ | 6. $12 \overline{)90}$ | 7. $24 \overline{)83}$ | 8. $46 \overline{)851}$ |
| 9. $33 \overline{)722}$ | 10. $56 \overline{)978}$ | 11. $30 \overline{)690}$ | 12. $80 \overline{)915}$ |
| 13. $50 \overline{)1864}$ | 14. $40 \overline{)3303}$ | 15. $35 \overline{)604}$ | 16. $24 \overline{)714}$ |
| 17. $89 \overline{)905}$ | 18. $66 \overline{)4860}$ | 19. $53 \overline{)9174}$ | 20. $67 \overline{)2319}$ |
| 21. $4 \overline{)3.2}$ | 22. $8 \overline{)8.64}$ | 23. $7 \overline{)45.15}$ | 24. $6 \overline{)804.6}$ |
| 25. $9 \overline{)326.7}$ | 26. $6 \overline{)20.4}$ | 27. $12 \overline{)32.4}$ | 28. $15 \overline{)67.5}$ |

Problem Solving

Solve.

1. Sam bought 2 children's tickets for \$3.00 each and 1 adult ticket for \$4.50. What was the total cost of the tickets?
2. A jet can fly 835 km/h. How far can it go in 5 h?
3. Three pitchers contain a total of 2481 mL of juice. If there is an equal amount in each pitcher, how much juice is in one pitcher?
4. A rectangular yard is 30 m long and 18 m wide. What is its perimeter?
5. Sandy has 52 hockey cards and 34 baseball cards. She gives 12 hockey cards to a friend. How many hockey cards does she have left?
6. Mr. Turner plans to give each child 2 hot dogs and 1 bag of chips at a party. How many hot dogs should he buy?
7. In December, Leonard's best time in speed skating was 47.75 s. In January, it was 44.295 s. By how much did he improve his time?
8. Kate and Joanna's room is 5 m by 5 m. Their father is putting in a partition so each will have her own room. Kate is older and will get 60% of the space. What will be the area of her room?
9. Make a drawing of Kate and Joanna's room showing where the partition will be. Write in the measurements of each room.
10. Bob spent $\frac{3}{7}$ of a week at a friend's house and $1\frac{1}{7}$ week on a trip with his family. How long was he away from home?

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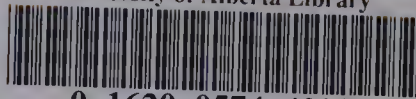
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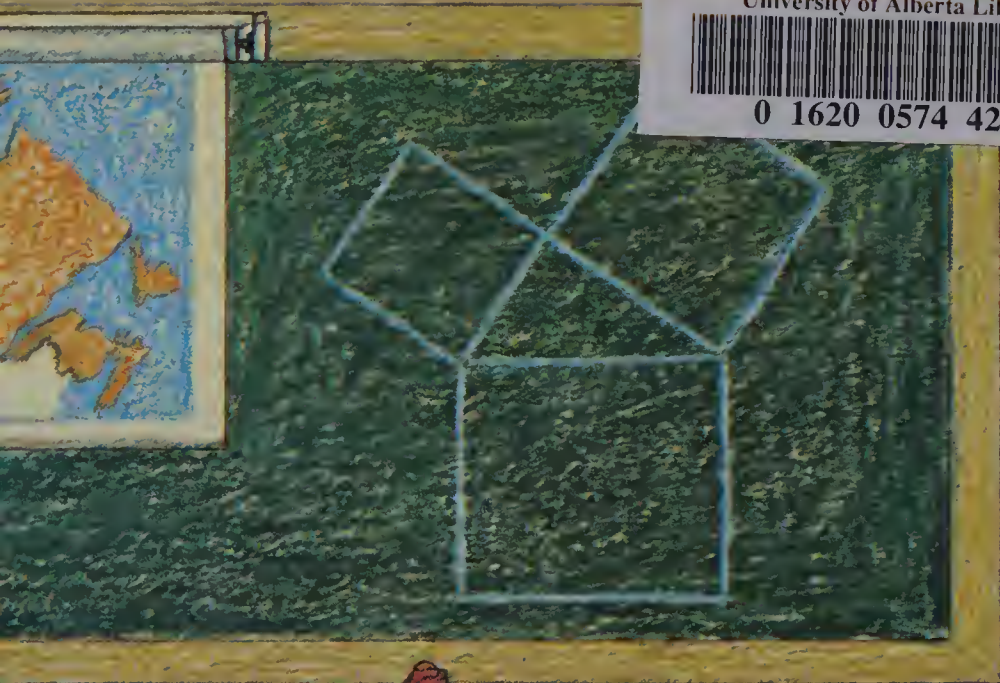
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